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ORIGINAL ARTICLES.

HAY FEVER.*

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Synonyms:—Hay Fever, Summer Fever, Rag Weed Fever, Snow Fever, Hay Asthma, Rye Asthma, Pollen Asthma, Pollen Poisoning, Pollen Catarrh, Bostock's Catarrh, Catarrhus *Aestivus*, Summer Catarrh, Summer Catarrh from Idiosyncrasy, Typical Early Summer Catarrh, Autumnal Catarrh, Summer Bronchitis, Rose Cold, Peach Cold, Harvest Cold, June Cold, July Cold.

In view of the limitations of time and of your amiable endurance I will plunge at once into my subject, especially as thereby both you and I will be spared a lengthy disquisition upon Meckel's ganglion, the fifth pair of nerves and their relations to the pneumogastrics, which I should feel constrained to indulge in, were I writing for publication in to-morrow's daily press.

Hay fever was first clearly recognized by Dr. John Bostock, in 1819, himself a sufferer, and by Drs. Gordon and Elliottson a year or two afterward. I find, however, that it was fashionable even at that time to regard the disease as of recent origin; yet Elliottson mentions one patient who was 66 years old who had it from his seventh year, and another since 1798, and a third for many years. C. L.

Parry, of London, records a case in 1809, and another in 1811. John Floyer, London, 1698, noticed that certain attacks of asthma were longer and sharper in summer than in winter, and in Good's "Study of Medicine," there is a reference to a case related by Timaeus, 1667, of an attack caused by the odor of roses and ipecac. Dr. Bostock found that hay fever was known to the laity, but not to the profession; nevertheless, their own King, George IV, had the disease.

A part of the mysterious origin must be set down to the indifference of the sufferers, who from year to year have forgotten their periodical affection and failed to consult their physicians. Of similar cause is the groundwork of the assertion that it affects only the wealthy. This is simply because with this class there is a higher intelligence and closer attention to ailments, and the fact that once having discerned the actual condition they, in many instances, take professional advice, or go to a place of refuge, thus drawing notice to themselves, all of which things are denied to the lower (poorer) classes. It is said that there are some 200,000 sufferers in the United States, at least within the range of observation of the Hay Fever Association, which, meeting annually at Bethlehem, N. H., may be held to represent the more stable and well to do. From

* Read before the Philadelphia County Medical Society, October 18, 1897.

my own experience and observation I am convinced there are many of our working people who suffer from this affection who do not even now, to this day, recognize the disease.

The salient trait which most attracts the attention of the student of hay fever is its annual recurrence. This is grafted on its very nature, becomes the central point of diagnosis, the chief characteristic, and to the elucidation of this all existing theories tend. It is, however, not sufficiently recognized that we come here upon a problem which we are totally unable to solve, and we can by no means be wiser on this than we are in the discussion of other conditions.

The reasons of the rhythmic measures of the most ordinary of every-day events are not and cannot be understood. Their unfailing occurrence at the appointed time is recognized, but the determination thereof then, rather than at some other period, cannot be explained. This is true not only as to the world around us, but as to ourselves. Health and disease afford abundant illustration. The fixation of the number of heart-beats, or of the respiratory movements, of the cycle of menstruation, or of the period of gestation, is alike as indeterminable as the cause of the mutations of the typhoid temperature, of the recurrence of hectic, of the regularity of the return of the types of ague upon the second or third or fourth day, or of hay fever upon its annual date. We are bound to accept these as fixed laws, but further than this we can hardly go. As the rhythm of physiologic effects is under the control of the central nerve ganglia, and as intermittency is a peculiarly marked feature of so-called nervous disorders, so far the annual return and its variations are evidence of the neurotic origin of hay fever.

The pollen theory rests upon its more obvious explanation of this difficulty. The investigations of Dr. Blackley, of Manchester, published in 1873, from observations extending over more than ten years, are remarkable for their originality and ingenuity. He experimented upon himself and others with various agencies to ascertain the origin of the malady. He decided against the efficiency of ozone, light, heat, dust, benzoic acid, coumarin, the odoriferous principle of hay, odors of various flowering-plants, as violets, roses,

etc., and against various microscopic fungi. He then tested the effect of the pollen of seventy-four kinds of plants and grasses. Within thirty minutes the rye caused coryza, occlusion of the nostrils, and sneezing, lasting for six and eight hours. The apparatus for testing the quantity of pollen in air consisted of a disc of glass, with a vane to keep the glass continually facing to windward, and upon this was placed a microscopic slide one centimeter in diameter, coated with glycerin, by which the particles floating in the atmosphere were caught by the slide. During the latter part of May but few pollen grains were found. About June 1 they began to increase and his hay fever also. The variation in the amount of pollen in the atmosphere corresponded with the degree of severity of the attack. Unfortunately, in accordance with this, it has been found necessary to specify numerous individual irritants.

Emanations from hay, Indian corn, bean flowers, roses, lilies, elder trees in bloom, and various other blossoms; from nettles, ambrosia artemesiae folia, ambrosia hertifolia, golden rod, and from various fruits and vegetables, have been cited as causes of the disease; but I am not aware that any specialized action has been proved; all alike act (if at all) by mechanical irritation. If we define a cause as a "constantly precedent," and an effect as a "constantly subsequent" event, the need of an array of causes is most embarrassing to the immobility of the theory, but volumes for its elasticity. A theory that gave thirty or forty causes for cholera, and claimed that it depended on the "idiosyncrasy of the individual," which one evoked the disease in a given instance, would not be very tenable.

The type of the disease seems to vary in different countries, though in their essential characters the same. In England patients are said to be at their worst in June and July, in this country during August and September. In the United States some attacked in May are well by July 1; some attacked in July are well by August 15; some attacked in August are well by November 1; some unfortunates suffer throughout the whole period from May to November—"the missing link."

Those suffering from the June type may occasionally have a September attack, or

it may be changed into a permanent August visitation. The August type may disappear in a certain individual and reappear as a June cold. A parent having the June cold may transmit to his child July or August cold, or all three, or of several children each may have a different type, and so, *mutatis mutandis*, of the others. Any or all of these forms may accrue to the progeny of asthmatic parents. It seems, therefore, as if, wherever occurring it were a manifestation of one and the same disease.

We are informed by a well-known and competent authority that the limited variation of flowering out-door plants would be, in Pennsylvania, to the extent of and not exceeding three weeks. Their punctuality to the self-same date yearly is an obvious absurdity, depending as they do upon the variations of the seasons. As thus the date of the flowering of plants varies within certain limits, the alleged appearance of the disease upon a certain day and hour is unaccounted for. While individuals suffer variously in May, June and August, and some from May till October (connecting links between all these types), and in course of years change from one type to another, and even occasionally become well without treatment, these facts prove the immutability of the blossoming date, or, more rationally, its limited variation, the change from the control of the cause is incomprehensible.

Moreover, even as a mere irritant, as it affects comparatively few, it must act upon a condition which is pre-existent, which is, therefore, independent of and predominates it, else would the cause, pollen, produce it universally.

Under the name of hay fever, then, is included a group of symptoms having for their chief and essential characteristic their periodic appearance, classed under a variety of names according to their time of appearance or fancied cause—June cold, July cold, peach cold, rose cold, autumnal catarrh, etc.

The symptoms of the disease are a sense of lassitude, in some reaching great prostration; irritation of conjunctival, nasal, bronchial and other mucous membranes, adjacent and continuous, extending at times even to the digestive tract, and manifested by excessive secretion from the parts affected; cough; asthma; well-mark-

ed injection and swelling of the tissues; and fearful and wonderful paroxysms of sneezing. This sneezing is not ordinary. I have frequently on the street been compelled to seize some friendly support, blinded and staggered by the violent sternutations. On entering a room I have had to bury my face in my handkerchief and sneeze it out, then, recovering myself as best I might, with face like the rising sun, brace myself for work. These symptoms are not all of equal severity in every case. One patient may be troubled mainly with coryza, another mainly with asthma, while a third may go through a course, at first of catarrhal symptoms affecting the naso-pharynx, followed later by asthma. I think it will be found that, other things being equal, the younger the patient, the greater is the predominance of the catarrhal, while in older persons, and in the more confirmed cases, the greater is the suffering from the bronchial and asthmatic symptoms.

Bosworth considers the pathognomonic conditions to be the long continuance of the paroxysms of sneezing; then the watery, serous discharge, with the bluish gray "tinge of the mucosa verging on opalescence, the surface of the membrane being covered with slightly viscid, watery serum, which gives it a glassy, semi-translucent aspect," the hyperemia being "confined entirely to the large venous sinuses, the capillaries of the mucous membrane proper not being congested." I am not aware that such sharply diagnosticateing conditions have been seen by any one else, and it seems as if they were observed through the spectacles of his theory of nasal reflexes described in one of his preceding chapters.

Upon examination of the nasal cavities we find, upon the lower border of the turbinated bones, that the mucous membrane is disposed in thick loose folds, owing to the peculiar arrangement of the net of arteries and veins constituting "cavernous tissues," its characteristic being that it may suddenly be gorged with blood resulting in extreme distension, and almost as suddenly be collapsed and relieved. This cavernous tissue is especially thick over the inferior turbinated bone and lower and posterior part of the median septum, as well as upon the lower edge of the middle turbinated bone. This distension in

acute condition quickly subsides, but in cases of chronic disease the mucous membrane is markedly thickened, the blood-vessels enlarged and tortuous, and the passages closed to a greater or less extent.

It is claimed that there are three reflex areas peculiarly impressionable, one at each extremity of the inferior turbinated bone and one (not so well proved) higher up in the vestibule (or anterior portion of each nasal cavity), which, when irritated either by disease or "*ab extra irritation*," transmit the impression to the nerve centres, and by them is imparted to distant organs. So that, for example, a tumor pressing upon the posterior extremity of the inferior turbinated bone might cause violent cough and spasm of the bronchial tubes, which disappear on removal of the growth. It is said that all parts of the cavernous tissue are not equally susceptible to irritation; the sensitive areas are inferior turbinate (the posterior and middle reflex areas) and the portion of septum immediately opposite, being particularly related to cough and asthma; the anterior, in vestibule, to sneezing, lachrymation and other catarrhal symptoms. We might compare these with certain other cases of reflex asthma (not hay fever) benefited by removal of the tonsils.

It is asserted, in view of these facts, that in hay fever the cavernous tissues become engorged and fill up the passages, and the several areas being impinged upon, the various characteristic phenomena follow.

Of the nature of the peculiar irritant, pollen, we can say but little, excepting that the microscopic appearance of the horns and briars thereon, in the mind of the theorist, amply support the hypothesis.

The theories of hay fever may be, then, thus summarized:

1. It may be due to chronic nasal catarrh, upon which the exciting cause acts with effect, with its dependent hyperesthesia, congestion and obstruction, the centric nervous symptoms being secondary to the hyperesthetic condition of the nostrils. The extremists even deny its existence as a separate entity, regarding hay fever merely as a condition—a form of ordinary catarrh.

2. It may be due to functional activity or paresis of the governing (vaso-motor) centers, with hyper-excitability of the erec-

tile (cavernous) tissues, in response to peripheral irritation. The erythema of the cavernous tissue, though secondary to the centric condition, is the immediately essential part, the most serious symptoms coinciding with the swelling of this tissue, and being dissipated with the subsidence of the same—a vaso-motor disease.

3. It may be due to an organic alteration of the nerve fibers terminating in the nasal region, and chiefly in the three reflex areas.

4. It may be one of the multiform manifestations of the uric acid diathesis.

In all these theories there is more or less firm belief in the agency of the pollen, either in inducing the disease or, at least, the paroxysms.

A summary of the local pathology would then be:

The symptoms of hay fever are due to the obstruction of the nasal passages, the result of chronic nasal disease. Hereby is set up a special and extraordinary irritability of the terminal nerve fibers, perhaps with organic alteration thereof, and resultant excessive excitability of the nasal and other mucous membranes and of the cavernous tissues, together with hyperesthesia of the nerve centers, the degree of irritability varying with different individuals and under the stimulus of certain special irritants. As a result of this organic alteration and tumefaction the reflex sensitive areas are directly involved or impinged upon, and the reflex phenomena in varying proportions of cough, asthma, sneezing, lachrymation and a congestion of tissues, contiguous and continuous, with resultant general prostration, ensue. The greater the local congestion and inflammation the more constant the reflected symptoms. Certain observers declare that in all cases of hay fever there is chronic nasal disease which is the original starting point; but others deny this, maintaining that there may be only hyperesthesia, especially of the reflex areas, without further evident disease.

It is exceedingly unfortunate for the strict "localists" that all cases of hypertrophy of the nasal mucosa are not attended with hay fever, nor all cases of hay fever associated with observable organic lesions: that the excessive hyper-sensitivity of the membrane in hay fever is not accounted for, nor its periodicity explain-

ed; and that many of those treated strictly according to these methods are not cured. I note an example, most carefully reported, in which with cold snare and galvanocautery all obstructions were removed, and areas rendered anesthetic, so that a probe no longer excited reflex symptoms, yet the patient suffered from hay fever with scarcely diminished intensity. Further, it is not seen, perhaps, that there is a possibility of at least a degree of the conditions described being the result (especially in acute hyperemias) and not the cause, the peripheral susceptibility being an outward expression of an inward state.

We are grappling with a difficult problem, because we have to deal with a mucous membrane, one of the most complex structures, containing fibrous, muscular, nervous, vascular and secreting tissues, and we meet with the same rebelliousness to treatment here as in the vaginal and uterine mucosa, to the refractory and lasting nature of which diseases the huge pocket-books of the specialists are a bulging testimonial. Again, if a patient had typhoid fever with enteric ulcer alone, and the incautious eating of a pancake resulted in diarrhea or perforation, we would hardly call the pancake the cause of typhoid fever. The cause must be antecedent to the effect, and to my mind there must be some morbid condition, the nature of which we do not understand, which is at the bottom of this malady. No specific action of the pollen having been shown, it must be concluded that this acts merely as an irritant, an effect shared in common with any fine dust in sufficient quantity.

The confusion of theories has arisen from the fact that the paroxysms have been mistaken for the whole disease. I am inclined to believe that the effects of the different varieties of pollen are mental rather than physical, and that the only activity thereof is its possible presence as dust. Further, I am inclined to think this differentiation to be rare among hay fever patients. I believe the disease to be in great part a neurosis, originating in local disease in the naso-pharynx, the characteristic manifestation being in part direct, the result of central nervous modifications, and in part reflex, from the action of various mechanical irritants, aided by local and constitutional factors when they exist, and by seasonable and climatic influ-

ences, the periodic and peripheric susceptibility being in particular expressions of certain impressions.

Solong as the cause was held to be an external one there was little encouragement for treatment and but little progress was made. I am hopeful, however, that with a more comprehensive study of the nasal tissues, and particularly of the nerve supply and nerve endings, we will learn to master this annoying malady. Our treatment should be directed in two channels:—

I. The Centric Nervous Modifications. The internal remedies that yield the best results are quinin in five-grain doses up to the verge of cinchonism, zinc valerianate, extract of belladonna, tincture of opium in five-drop doses, and phenacetin. For the dyspnea, potassium iodid, ten grains every other night, seems to give better results than the same amount in divided doses. The Chapman ice-bag, which is merely a narrow rubber bag, eighteen to twenty-four inches long, filled with cracked ice and applied along the spine for from fifteen to sixty minutes twice daily, has in some cases acted very happily in modifying the symptoms. Care should be taken to make the earlier applications only from ten to fifteen minutes in duration.

Under this heading would come removal to a so-called exempt region. The degree of immunity varies with the individual, and sometimes with the patients in the same locality in different years. There is much more encouragement, the tonicity of a suitable refuge is more than a temporary benefit, as in a certain number of cases the period of the disease is shortened thereby, so that the length of the necessary isolation is much diminished.

II. The Peripheral Sensibility. The local applications may consist of extract of belladonna in the form of a bougie; glycerin and carbolic acid, 1 to 30; or coating the surfaces with vaselin—though to some both glycerin and vaselin act as irritants—and applying a 4 per cent. solution of cocaine.

This last drug must be applied thoroughly to be of service, and in fact a test experiment may be made which will give an inkling as to the source of the symptoms. If cocaine be applied thoroughly to

the nasal cavities alone of a patient with a swollen face, injected conjunctivæ, excessive lacrimation, sneezing and serous discharge from the nose, all these symptoms will be greatly ameliorated and held in abeyance as long as cocaine anesthesia is kept up. Of course, the asthmatic symptoms cannot be thus relieved. Unfortunately, as we well know, the constitutional effect of cocaine, the nausea, dizziness, and subsequent depression, are so disagreeable as to prohibit the excessive use of the drug necessary to keep up that effect.

I have found a 2 per cent. solution of cocaine phenate with boric acid solution (gr. v to 1 ounce) sprayed into the nose at intervals, of more use than anything else. The carbolate aids the anesthetic effect and prevents too rapid absorption of the drug.

Of the local treatment by cauterization or removal of hypertrophy, I have very little to say. The means employed are various; the wire loop or snare, or the use of caustics such as chromic, nitric, or glacial acetic acids, or the galvano-cautery—the severity of the operations ranging from a superficial scarification to a more or less extensive removal of tissue *en masse*. Many cases thus treated have relapsed; some few cures are reported. I do not emphasize these measures, because they should not be considered as treatment specific for this disease. In suitable cases, judiciously employed, by removal of diseased tissue, as well as by the reduction of hypersensitivity and abnormal congestions, the system and part affected are put in the best possible condition not only for recovery from the attacks of hay fever but for the maintenance of the general bodily health, by the application of the familiar surgical principle of physiologic rest. Let us be assured, however, that we are not dealing with something mysterious and inscrutable depending upon some obscure condition of atmospheric influence or irritation coincident with a mere idiosyncasy, but with a true morbid condition existing in the individual, the whole nature of which, I regret to say, we are yet unable to understand. Hay fever is probably, in its incipiency, a disease of the complex tissues of the naso-pharyngeal mucosa peculiar in that the irritant affects primarily the terminal nerve fibres, the implication of the secreting and vascular

elements being secondary as is shown by the fact that the engorgement of the tissues of the nose and of the face and the excessive lacrimation are largely due to the violent prolonged paroxysms of sneezing. The pathologic condition subsequently extends by continuity to the bronchial mucous membranes, and later results in a hyperesthetic condition of the allied centric nerve ganglia. Pollen, like any other fine dust, is a mere mechanical irritant.

For those afflicted by the disease who hope to outgrow it, I may say, although I have known one case of a cure by a trip to Europe, in a gentleman over sixty; another sufferer, who died at the age of ninety-four, had had the disease every year for fifty years.

Personally, with regard to the treatment, with all due respect to our modern rational and experimental therapeutists and to those of our rhinologists who gouge and burn and saw, in spite of all the remedies that I have recommended for others—for myself when an attack comes on—as it has for twenty-two years, and probably will for twenty-two more if I live—I shun drugs and drug stores and specialists, and flee like a bird to the mountains.

Egg Albumen as a Medicine.

When the patient is hardly able to pay a doctor's bill, to say nothing of a drug bill, a cheap and handy substitute for fancy invalid foods is desirable. When fever is present and appetite is nil, and when we want an aseptic article of diet, Dr. Boynton says, the white of an egg raw serves both as food and medicine. The way to give it is to drain off the albumen from an opening about half an inch in diameter at the small end of the egg, the yolk remaining inside the shell; add a little salt to this and direct the patient to swallow it. Repeat every hour or two. In typhoid fever this mode of feeding materially helps us in carrying out an antiseptic and aseptic plan of treatment. Furthermore, the albumen to a certain extent may antidote the toxins of the disease. Patients may at first rebel at the idea of eating a "raw" egg, but the quickness with which it goes down without the yolk proves it to be less disagreeable than they supposed.—*Pacific Medical Journal*.

CURRENT LITERATURE CONDENSED.**Complete Diagnosis of Cardiac Disease.¹**

1. The first step in the complete diagnosis of disease of the heart is the location of the lesion. This is accomplished in the process of discovering its existence. The striking physical signs of valvular disease perhaps absorb too much of the attention of the practitioner, to the neglect of other facts. We determine whether the disease is valvular or non-valvular; and if valvular, which of the valves it involves—mitral obstruction or incompetence, aortic obstruction or incompetence, combinations of these four lesions, or affection of the right side of the heart.

Mitral and aortic lesions are of different significance practically. The effects of mitral disease fall first upon the pulmonary circuit, including the pulmonary veins, capillaries and artery, and on the right ventricle and auricle which maintain the circulation through these. We can tell this by the disposition to dyspnea and cough on exertion, by the amount and color of blood in the face, by the signs of enlargement of the right ventricle and the loud second sound over the pulmonary base. If compensation is disturbed the phenomena of mechanical congestion of the veins, including those of the viscera, quickly supervene, and thereupon dropsy, hemorrhage, and interference with nutrition.

There is nothing absolutely grave prognostically in this condition, but a prospect of slow impairment of nutrition and of general functional capacity, with the risk of acute exacerbations which will ultimately prove fatal. As regards treatment, the special indications derived from the mitral locality of a valvular lesion are to protect the lungs against the causes of catarrhs and respiratory strain; to unload them, if congestion becomes extreme, by means of extraction of blood; to take free advantage of the portal system in order to relieve venous congestion by means of purgatives; and to have recourse, in desperate conditions of mechan-

ical congestion, to acupuncture. All these, of course, in addition to strengthening the myocardium with proper nourishment, evoking fresh force with digitalis and other cardiac stimulants, and lightening the peripheral resistance as much as possible.

Aortic lesions have different effects at first from those of mitral lesions. These are chiefly arterial and visceral anemia, manifested by pallor and faintness, giddiness, and other cerebral disturbances; and distress in connection with the left ventricle, including precordial oppression, pain, and palpitation.

The prospect here is not so promising as regards length or security of life. If difficulty arise, it concerns the supply of living blood to the brain and the heart itself; and it concerns the emptying of the left ventricle, behind which is a valve, so that over-distension means grave embarrassment or risk of instant death. Involvement of lungs and mechanical congestion and dropsy are further effects which make their appearance when the mitral yields or the right heart fails. There is, however, another feature connected with aortic disease, of a purely anatomic kind (that is, referable to the situation of the lesion) which has a great influence on the course and prognosis of the disease. Lesions of the aortic valves are often associated with disease of the coronaries, and indeed may occasionally produce it. The result is interference with local nutrition in the myocardium—the very form of valvular disease which calls for the largest supply of blood is the one most calculated to impair it.

The treatment indicated for aortic disease is to maintain the nutrition of the myocardium in the face of special dangers or difficulties; to moderate the demand for blood in the tissues—that is, throughout the body generally; to improve the condition of the blood (so that quality may compensate for quantity) by means of iron, arsenic, and the like; and when symptoms of distress supervene, to promote easy and sufficient evacuation of

¹ J. MITCHELL BRUCE, M.A., M.D., F.R.C.P., in *Practitioner*, October, 1897.

the left ventricle by means of rest, iodids, nitrites, and digitalis. Should failure of the heart develop more slowly, and the right ventricle dilate as well as the left, digitalis, strychnin, and other cardiac stimulants will have to be employed exactly as in mitral disease.

2. The second step in the complete diagnosis of valvular disease is one which is sometimes neglected. It is to determine the nature or kind of disease of the valve—to make the pathologic diagnosis. Just as "sore throat" is not a diagnosis, but must be qualified by "scarlatinal," "syphilitic," "rheumatic," "gouty," etc., in order to be of real clinical value; just as "pleurisy" is often but a misleading as well as useless term, unless coupled with "tuberculous," "rheumatic," "malignant," etc.; so "valvular disease" is a mere anatomic expression, "mitral obstruction" little better, unless the nature of the lesion be set forth along with it. Now the common pathologic processes which produce valvular disease are rheumatism, chorea, septicemia, syphilis, scarlet fever and other "acute specifics," gout, degeneration from disordered nutrition, strain—whether sudden or continued, Bright's disease, protracted cardiac excitement (as in Graves disease), and perhaps others. The occurrence of malformations must not be forgotten.

I will not attempt to discuss the therapeutic and prognostic significance of each kind of valvular lesion. I will take but two and contrast them—a lesion of the aortic valves consequent on rheumatic endocarditis and one of syphilitic origin. Is it of any genuine importance to differentiate these? So important is it, that opinion is valueless without the step. The first case may live indefinitely because the lesion is the scar of an old endocarditis, with risk, no doubt of recurrence; the second will quite probably die shortly, and perhaps suddenly, because the syphilitic disease has its seat in the vaso vasorum of the aortic wall by the valves, and involves also the *vasa cordis*—that is, the coronaries. Another important application of this part of the diagnosis is in connection with the slow valvular degeneration which we find occasionally associated with vascular degeneration after middle life. A careful study of the progress of the symptoms and pro-

gress of the signs serves to impress on us how unwise a hasty diagnosis of the form or seat only of the lesion, such as "aortic obstruction" would be. The old rheumatic lesion calls for no anti-rheumatic treatment except by way of prevention; active syphilitic disease demands iodids freely. Degenerative processes indicate the administration of highly nutritious food, specially selected for its digestibility and freedom from flatulent products; a little stimulant well diluted; gentle exercise in the fresh air; and—in the way of drugs—tonic doses of *nux vomica* and digitalis combined with iron and arsenic.

3. The third step in diagnosis is to determine the presence, character, and completeness or sufficiency of compensation. This phrase "compensation" has been and is so intimately and unfailingly associated with disease of the heart that one might think the inquiry would never be overlooked or neglected in practical medicine. Indeed, "compensation" seems to be regarded as a *spécialité* of cardiac pathology. We forget that there is probably no chronic disease of any organ in which compensation does not participate—in phthisis, in chronic pleurisy, in Bright's disease, in dilated stomach, and so on through the solid viscera, including liver and brain. We overlook the consideration that without compensation in the widest sense we should have hope neither in our prognosis nor in our treatment. Natural recovery—by physiologic as well as by anatomic repair—is the very foundation of the favorable terminations of disease of every kind.

I need not dwell on the methods and mechanics and conditions of compensation. Hypertrophy is easily understood. Dilatation from overfilling is also obvious—the physical result of over-distending an elastic chamber by feeding it from two sources instead of one; or of pouring into it the full charge of another chamber thus overfilled. It is always accompanied by hypertrophy as long as it is itself compensatory. The evidences of compensation are also easy and familiar. The fully compensated heart or compensated lesion is attended with no persistent symptom. But compensation is a relative term; compensation in the face of work and license generally; compensation without strain of muscle or tax of mind; compensation with

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rest of body and mind insured. The appreciation of this fact is the basis of the advice given prognostically about the life and work of our patients, particularly boys, and the key to the full diagnosis of failure.

Failure of compensation is easily recognized by the many familiar symptoms of laboring and failing heart and by physical signs. Its mechanism is perhaps not so clearly understood as it ought to be. When a cardiac chamber fails to display and sustain the necessary pressure on its contents, the end of systolic time finds an insufficient systole, evacuation, or discharge. The next diastole provides for a fresh charge as usual; but the place of this is already partly occupied by the residue of the previous discharge. One of three things must now happen: either the walls of the chambers must be stretched till they provide accommodation for the increased amount of blood; or the charge that is being driven into the chamber must be incomplete, leading to backward pressure; or the wall of the chamber must give way. The first and second results of failure occur together, and constitute residual dilatation of the heart and mechanical congestion; the third means rupture, which is happily very rare, because the other effects occur instead.

4. Before going on to discuss the prognosis and treatment of failure, we may profitably introduce here the subject of non-valvular disease of the heart. This is the most difficult subject of all in connection with cardiac disease in practice.

The heart becomes affected in action and structure (whether for good or for evil) in adherent pericardium; in certain morbid changes of its own walls, especially such as originate in coronary disease; in arterial degeneration; in chronic Bright's disease; in protracted stress or strain of the circulation; and in prolonged nervous excitement or disturbance. Most of these pathologic processes affect the heart by demanding more force from it; some of them withhold nourishment from the heart and thus indirectly place it at a disadvantage—*i. e.*, in relation to the work which it must accomplish; many of them do both at once—Bright's disease, for example. For a time compensation may be built up and maintained; but presently failure occurs here as in valvular disease,

associated with dilatation, and on the whole with less prospect of recovering compensation.

These last kinds of heart disease reveal to us most clearly the pathogeny of the simpler kinds, including the causes or *circumstances which induce cardiac failure*, and the indications for treatment. Throughout our studies, theoretical and practical, of heart disease, two factors always stand prominently forward: 1, the cardiac work—*i. e.*, the work thrown on the heart, the energy demanded of it; second, the energy supplied in latent form to the heart in the blood, which in turn derives it from the food. These factors are the keys to the problems of prognosis and treatment in heart disease. They must be ascertained in each case (valvular and non-valvular), and kept before the mind in practice. If the demand for work and the supply of nourishment be well balanced, there need be no circulatory disturbance. The cardinal condition of sufficient action of the heart is that the driving power shall be greater than the work demanded to be done. Now the driving power is the energy that can be liberated by the myocardium from the blood (or vice versa?)—the nutrient blood which streams through it. The work demanded consists of the weight of the blood discharged multiplied into the resistance ahead.

Unfortunately the demand for work is often excessive, and there is risk or certainty then that the supply of energy will be relatively insufficient and failure of the heart ensue—failure even of the healthy heart, *a fortiori* of the diseased or the hypertrophied heart. This is chronic strain or “over work,” daily seen in the poor man, who is so much benefited in institutions of this kind by rest, the treatment obviously indicated and often of itself perfectly sufficient. Unfortunately (2) the work is sometimes just the reverse—it is insufficient; and there is risk or certainty that the latent energy will accumulate in the wall of the myocardium in the form of fat, and that the heart will fail when required to meet any extraordinary, sometimes even a fair ordinary, demand upon it. This is the degenerative heart of better-class patients which exercises—walking, or otherwise formal and graduated, greatly in favor at the present time

—do so much to remedy. The development of this aspect of cardiac therapeutics is not confined to these particular cases, but has been employed in well selected cases of every kind. The principle is that of "training" and gymnastics. The objections to some of its modern forms are their indiscriminate employment—the fault mainly of the public; and the claim of novelty for the principle, which has been taught in this country for the last fifty years by Stokes, Quain, and other great British authorities on heart disease.

If nutrition be excessive, similar degeneration will supervene, as in the overfed. Underwork and overfeeding usually go together; and strict regulation of food and drink has usually to accompany graduated exercises.

If nutrition be defective, failure ensues. This is the manner in which failure chiefly arises in connection with the heart, particularly in the subjects admitted to this asylum. Whether the heart be healthy, or whether (as is usually the case) it be damaged (anatomically by valvular disease, physiologically by the strain of increased resistance), it breaks down if the blood supplied through the coronaries be poisoned or deficient. Deficiency of blood is met with in coronary disease (obliterative degenerative, syphilitic, inflammatory—a heterogeneous group); in general anemia—many forms, which connect failure of the heart with hemorrhage, uterine disease, pregnancy, parturition, menorrhagia, poverty; in insanitation and toxemia (tobacco, alcohol, tea, drugs, intrinsic poisons). We must not forget to add to these the subtle influence of the nervous system: partly acting on nutrition, partly by increasing the demand for work, partly by deranging delicate adaptations. Several of these cases before us illustrate the causes of failure. When failure can be traced to defective nutrition or poisoning, the prognosis may often be favorable—at any rate, the immediate prognosis, as a few days' good feeding and warmth prove. Treatment ought to consist in these comforts, associated, of course, with rest and the other measures indicated by the situation and kind of the lesion.

In a word, we must take a fourth step in the diagnosis of every case of heart disease with failure that comes before us—

namely, the diagnosis of the cause of failure.

Conclusion.—We are now able to appreciate the number of different steps that have to be taken if we wish to make our diagnosis of "disease of the heart" complete in the individual instance—the seat, locality, or region affected; the kind of disease; the presence, sufficiency, or failure of compensation; the cause of failure, physical or nutritive, which is behind failure. I would once more insist on the last step, which is constantly being neglected. Never be content with what is usually regarded as the end of diagnosis—the discovery of failure of compensation. If failure has occurred, as is usually the case when treatment is called for, get at the cause which is at work. Overwork, insufficient exercise; underfeeding, overfeeding, cardiac poisons, mental distress or strain, anemia from hemorrhage, insanitary life and work, uterine complications, affections of the lungs taxing the right heart, affections of the vessels taxing the left heart, including Bright's disease—these are examples of the varieties of causes at work in cardiac failure which must be searched out and treated, each in its own proper way.

What is the Legal Pharmacopeia? *

Ohio has a law providing that an article sold under a name recognized by the U. S. Pharmacopeia shall conform to the standard laid down in that work. The law was passed before the 1890 Pharmacopeia was issued. An Ohio druggist was charged with violation of the law in consequence of having sold, at some period since 1893, a drug which did not conform to the requirements of the last edition. The Supreme Court, however, decided that the legal pharmacopeia is the one that was in existence at the time the act was passed, namely, that of 1880. Under this construction the case was dismissed. This decision stands, of course, for Ohio alone, but the courts of last resort run in somewhat similar grooves, and we may expect similar decisions elsewhere.

It seems to us that this brings matters to a very delicate position. The Ohio decision makes conformity to the current

* HENRY LEFFMANN, M.D., in the *Polyclinic*.

Pharmacopeia an offence when the requirements differ from that of 1880.

The logic of the written opinion is, however, so clear and direct that the conclusion can scarcely be gainsaid. The Court says that the Legislature could hardly have intended to legalize a book which was not in existence, and that to suppose that a change in the standard is legalized by implication, would be to give to private persons the fixing of what shall constitute an offence, a power which belongs to the Legislature alone and which it cannot delegate to others.

The muddle is one of the many examples of mischief wrought by hasty legislation under the pressure of alarm or agitation, even though the motive be good. It also shows the unwisdom of giving legislative functions to the actions of any body of men outside of the Legislature itself and not responsible to it. Why should the practically self-appointed drugists and doctors who meet to revise the Pharmacopeia have the right to determine what shall be the legal standard of drugs? No one will object to their legislating for themselves and to their furnishing to the public a copy of their methods and standards, but it is unwise to allow more authority to it.

Splenectomy.*

Jonnesco, of Bucharest, made at the Twelfth International Medical Congress a contribution of great importance to surgery upon this subject.

During recent years the literature of splenic surgery has been small, as our knowledge of the subject has been passing through the experimental stage. Enough cases of splenectomy, however, had by the time Jonnesco began his work, in 1896, been accumulated in surgical literature to show that splenectomy for the hypertrophied leukemic spleen was uniformly fatal; while the hypertrophied spleen of malaria, and the wandering spleen had been removed with comparatively frequent success.

Jonnesco had noticed the steady improvement in the statistics of splenectomy for the hypertrophied spleen of malaria. He collected 36 cases, with a mortality of 18, or 50 per cent., but found on examina-

tion by dates that, from 1887 to 1896, there had been 25 cases, with 8 deaths, or 31.7 per cent.; and that from 1891 to 1896 there were 15 cases, with 3 deaths—a fall in mortality to 15.4 per cent. This fall in mortality is due undoubtedly to two causes: improvement in technic, including asepsis; and a more intelligent choice of cases for operation. Among the contra-indications established by the experience of previous operators have been (1) profound cachexia, (2) extensive adhesions, (3) great size of the organ, (4) leucocytæmia.

With all these contra-indications Jonnesco's experience leads him to agree, except that of the size of the spleen. Péan, Vulpius, and Adelmann have considered that splenectomy, in order to be successful, should be limited to spleens of a weight of less than three kilogrammes. Jonnesco's experience does not lead him to agree with these authors, for in four out of his twelve operations he removed spleens weighing over three kilogrammes, the largest weighing 5.750, with success.

The indication for operation Jonnesco considers to be, the failure of medical treatment to relieve the pain, disability and beginning cachexia; and his experience has shown that these symptoms, as well as the general health, rapidly improve after splenectomy. He considers the undue prolongation of medical treatment both useless and dangerous; for as long as the patient is the subject of splenic hypertrophy, cachexia progresses, and the prognosis of the operation becomes worse.

The prognosis will vary according to whether the operator is dealing with an adherent, fixed, mobile or dislocated spleen.

With regard to the effect of splenectomy upon the blood and system, Jonnesco has had the same result as previous observers, finding that a great increase in the number of red blood-corpuscles resulted, sometimes beginning immediately after the operation, sometimes after a short period of diminution. The white corpuscles also increase, and with relatively greater rapidity than the red ones; so that during a certain period of varying length there is a temporary leucocytosis.

These conclusions of Jonnesco's are certainly given additional weight by the extent of his experience, for between Feb-

* Editorial in *Boston Medical and Surgical Journal*.

ruary 3, 1896, and August, 1897, he had performed splenectomy 12 times, 11 times for malarial hypertrophy, and once for hydatid cyst. His mortality was three, or 25 per cent.; and at the time of his writing one of his patients had not yet left the hospital. The three deaths occurred in extremely unfavorable cases. In all of them the spleen was very large and universally adherent. In freeing the spleen in one case the pleura was opened in two places, and in another the diaphragm was torn so that it had to be sutured.

With regard to operative technic Jonnesco lays stress upon the operator's standing to the patient's right, the median incision, complete exposure of the vault of the diaphragm, the rupture of adhesions at the expense of the abdominal walls, in order to avoid traction on, and rupture of the spleen, the section of adhesions between the two ligatures, the section of each vessel of the pedicle between two ligatures. Wounding the splenic capsule should be avoided, and complete hemostasis secured before closure of the abdomen. Strong compression with an elastic bandage should be employed.

A temporary rise of temperature, which frequently follows splenectomy, may be due to a recrudescence of malarial poisoning, or to a bronchitis, which frequently ensues. No mention is made of the anesthetic employed.

Jonnesco concludes his paper as follows: "The comparatively slight danger of splenectomy, its excellent results in malarial hypertrophy, the disappearance of the symptoms of cachexia after the operation, lead me to propose extirpation of the spleen even in cases where the spleen is comparatively small and the local symptoms not severe, as preventive treatment against malarial cachexia. I am led to this conclusion by Laveran's discovery that the spleen is the source from which the hematozoa of malaria are distributed to the body in the blood stream. Each discharge of hematozoa coincides with the rise of temperature, and hypertoxicity of the urine."

Jonnesco's paper is a contribution of distinct value to surgical science, although the advanced position taken by him with regard to the removal of slightly hypertrophied spleens as a preventive of ma-

larial cachexia will probably be regarded as somewhat too radical for immediate adoption by the profession.

Treatment of Hemorrhoids by Excision.*

No better method has supplanted this in the treatment of hemorrhoidal tumors situated external to the sphincter ani, when performed according to the principles of modern surgery. Excision of internal hemorrhoids is condemned by the majority of surgeons because of the danger of hemorrhage. To cut a growth from the surface and leave the wound open to bleed and invite infection, is no better surgery for the rectum than for the more exposed parts of the body. With aseptic conditions there should be good results, and, with careful suturing, there is no danger of secondary hemorrhage.

I have employed the ligature in removing internal hemorrhoids of moderate size, always feeling it was not an ideal operation, though I have had no bad results.

Treating more aggravated forms by the method known as "Whitehead's" results lead to the treatment by excision of any case requiring operation. Varying the amount of excised tissue to the extent of growths and carefully suturing the wound, accomplishes security against secondary hemorrhage and a condition favorable to primary union.

The operation consists in removal of the mucous layer of the rectum together with adventitious tissue and the entire hemorrhoidal plexus, which form the hemorrhoidal growth. The operation removes with the piles all the pile-bearing tissue. The healthy mucous membrane above the growth is brought down and stitched to the edge at the muco-cutaneous junction.

Some authorities endorse the method; not a few severely criticize and condemn it. Kelsey considers the three methods, ligation, clamp and excision, give the same satisfactory results in the end, the clamp and excision cure with less pain than the ligature, and the clamp operation is much simpler than excision, while possessing all of its advantages. He states that he has never practiced the method of Whitehead, but has carefully watched the results of surgeons of reputation. As a

* G. W. LIBBY, M.D., in *Med. Sentinel*, October, 1897.

surgical novelty it has given certain satisfactory results and some bad ones. It is one more means at hand for curing hemorrhoids, but nearly all who have practiced it have been content to return to the older methods as simpler of execution and equally satisfactory for radical cure.

Mathews mentions the operation to condemn it, embodying his objections under seven heads, which embrace all points made by opposers:

1. "The operation meets the demand in but few cases." Not every case of hemorrhoids requires operative treatment, and not every case demanding operation is a case for Whitehead's method; but for a case which has been neglected until the entire circle of the rectum is involved, and added to hemorrhage we have protrusion of an almost constantly congested mass of hemorrhoidal growth, this is an ideal operation.

2. "The necessity of an anesthetic and the dangers attending its use."

This same objection holds in other operations. While hemorrhoids may be and frequently are treated by clamp and cautery, or by ligature, without general anesthesia, there are few cases in which an anesthetic might be employed.

3. "Full and complete dilation and paralysis of the sphincter muscle is required."

In the opinion of Mathews this adds to the risk of operation and is not necessary in other methods of cure. Many authorities recommend dilatation before attempting any operation for the radical cure of piles. Ashhurst says: "Before undertaking any operation on hemorrhoids, it is well to dilate the sphincter." Since it would not be humane to dilate without anesthesia, this point also answers the objection to the use of an anesthetic.

4. "The operation is difficult, tedious and bloody."

Whitehead has not found the operation tedious, nor has he encountered serious hemorrhage; few who have performed the operation will deny that it is bloody and somewhat tedious. When the operation is complete there is no danger of hemorrhage.

5. "If primary union does not take place, as would be unlikely in strumous cases, it would leave a large suppurating wound to invite sepsis."

In a markedly strumous case one would hesitate to do any operation for hemorrhoids since evil results of sepsis might follow. Aseptically performed in a subject fit to bear any operation, there is little danger from non-union for at least a part of the wound. In one case I failed to secure primary union for about a third of the distance, but the final result was as good as where primary union took place.

6. "The removal of the entire hemorrhoidal plexus involves an unnecessary amount of surgery."

While Whitehead insists upon the removal of the entire plexus, this may not be necessary in all cases. The operation may be modified according to the involvement of the veins. In the class of cases in which this operation so well meets the indications, the entire venous plexus is involved, and the complete operation renders a return of the hemorrhoids impossible.

7. "Danger of secondary hemorrhage."

Whitehead himself, in over two hundred cases, did not meet with this complication. Care must be taken not to make the lower incision too far out upon the skin, otherwise after recovery the mucous membrane will be drawn outside the external sphincter. A good rule is to make this incision from one-third to one-half inch above the muco-cutaneous junction, leaving the zone of mucous membrane provide the anal margin. The hemorrhage can be reduced by dissecting a small portion of the tissue to be removed, then suturing that denuded portion, and so proceed the entire circle of the rectum. Sutures should be placed deep enough and sufficiently tight to control hemorrhage, but not deep enough into the muscle to cause pain and tenesmus. If the continuous suture is used it should be tied in separate sections. Four to six heavy, silk interrupted sutures at equal distances apart, each intervening space closed with a separate, continuous catgut, prevents drawing the anal outlet to undue narrowness.

Mr. Harris-Liston describes, in the "American Medico-Surgical Bulletin," a form of insanity caused by blows upon the head with the open hand. This may be by the teacher as a punishment, or by a pupil in play.

Radical Cure of Hernia.⁵

Operations for the radical cure of hernia are much the same in principle, viz.: to dissect out the sac, ligate the neck, and close the canal.

MacEwen, of Glasgow, preserves the sac by folding it upon itself. This he claims when returned within the abdomen, opposite the internal ring, acts as a pad. He closes the canal by suturing the conjoined tendon to Poupart's ligament, and the integument and superficial fascia by interrupted sutures.

Ball, of Dublin, after dissecting out the neck of the sac, recommends the torsion or twisting of it before suturing and cutting it off.

Barker, of London, dissects out only the neck of the sac, ligates it and then cuts it off half an inch below the ligature, but an important part of his operation is that he then fixes the neck to the abdominal wall with the same suture with which he closes the internal ring. The canal is closed in the usual way. I have practiced this method in certain cases, especially where the sac is small and the hernia of long duration. If, however, the hernia is large and a corresponding amount of peritoneum is removed, there is liable to be constant pain and annoyance, a pulling sensation, especially when the patient assumes the erect position. This complication was a marked feature in one case under my care.

Halsted's operation is somewhat complicated, and requires care and experience to properly perform. He divides the muscles of the abdominal wall out as far as the level of the anterior superior spine; the walls of the sac are sutured at as high a level as possible, and then the lower portion cut away. The spermatic cord is now transplanted to the outer angle of the wound. The divided muscles and pillars of the ring are stitched with very deep, quilted sutures, and the skin wound closed with buried sutures. The dressing consists of sterilized gauze, held in place by a bandage soaked in alcohol, and the whole covered with celluloidin.

McBurney, of New York, treats the wound by deep incision, after dissecting and ligating the sac. He endeavors to keep the wound an open one by turning

in the integument and suturing it to the deep fascia. The wound is then packed with iodoform gauze, and allowed to granulate, which takes from five to six weeks. He claims that the resulting scar or cicatrix completely obliterates the canal, and septic infection is prevented. There are two objections to this mode of treatment: First, the length of time it takes to produce a cure; and, second, the liability of the cicatricial tissue giving way under strong pressure.

Bassini's operation is distinctive in character, and has more advocates than any other special operation. He makes his incision obliquely downward from a point nearly on a level with the anterior superior spine, parallel to and about half an inch internal to Poupart's ligament, and ends at the center of the external ring. The aponeurosis of the external oblique muscle is raised upon a grooved director and divided above the internal ring, the fascia is raised and dissected, up as far as the border of the internal rectus muscle, and externally until the shelving portion of Poupart's ligament has been exposed. The sac and cord are raised and separated high up within the internal ring. The sac is ligated, excised and the stump dropped back in the abdominal cavity. The cord is held up, and from three to five buried sutures are introduced beneath it, including the internal oblique and transversalis muscles and fascia on the inside, and Poupart's ligament on the outside, thus forming a new bed. The cord is placed and the aponeurosis of the external oblique united by a continuous suture over it. The skin wound is closed by a continuous suture, without drainage.

Bassini's operation, viz.: the raising or transplanting of the cord, is the preferable operation in a large majority of cases. However, there are two precautions that should be observed. First, it will be noticed that the spermatic cord in its normal relation, is surrounded by a thick fold of cellular tissue, and that it passes through the internal ring at an obtuse angle. If now the cord is loosened and raised, and the canal closed up to the cord, the angle will be increased to a right angle, and in this way there is liable to be more or less strangulation of the cord, and pain due to pressure. The second is, that in loosening and raising the cord, the testicle is always

* W. H. Saylor, M.D., in *Medical Sentinel*, October, 1897.

raised out of its normal relation in the scrotum, and if it is not replaced before the part heal, it is liable to remain permanently near the external abdominal ring.

In cases of hernia that have come under my care I have not followed any one authority, but have used my best judgment in each individual case. In the main I have raised the cord as indicated by Bassini, and united the stump to the upper angle of the wound as advocated by Barker. I believe the latter will afford additional protection and prevent to a certain extent relapse.

The Black Man as a Patient.⁶

The fact, of course, is generally known that the colored race of mankind are less susceptible to pain than the highly civilized members of the white community. It is also of interest to recall that highly domesticated animals such as horses, are supposed to feel suffering acutely in comparison with animals in the lower scale of life which have never been brought under the influence of domestication.

Again, it is a matter of common observation that some persons bear pain much better than others. In these cases there may be some natural endowment of the nervous system by which the former, when the occasion arises, are enabled to make a display of heroism of a nature which seems nothing less than extraordinary.

Among the black races, however, the normal condition seems to be a remarkable indifference to pain, whenever and however produced, which, to medical men accustomed to practise among white patients, is at first altogether difficult to realize. A colonial contemporary, in discussing this matter, adduces some curious instances of this special feature. Mention, for example, is made of a Makua whose foot had been amputated, and who was found the next day out of bed walking about on the hospital floor using the affected limb for progression just as if nothing was amiss with it. Again, a little girl, whose leg had been amputated, was found sitting by the side of a pool, on the day after the operation, dangling the stump in the muddy water, which she was splashing over it with her hands, and singing to

herself while doing so, in perfect happiness and contentment.

The callousness to pain is equally noticed among the women as well as the men in the black races. During some punitive operations in Central Africa, a stockade was shelled, and shells being no respecter of persons, many women and children were killed and injured. Among the latter were several women who, although wounded mortally, continued their occupations of picking up firewood, drawing water, and attending to their physical wants. But within twenty-four hours they were dead.

The experience of those who practise among negroes is to the effect that black patients do not suffer from shock after a severe injury or a large operation. That this should be the case is not surprising in view of their indifference to pain. Upon the whole then, negroes make excellent patients for the surgeon, often recovering well from wounds to which a white man could not fail to succumb. For the physician, however, the negro is a bad patient, inasmuch as he is peculiarly unable to withstand acute attacks of illness, such as phthisis, dysentery, and infectious diseases.

Summer Diarrhea and the Sewage Problem.⁷

A severe epidemic of what is called "Summer Diarrhea" has raged in Sheffield this year during the months of July and August, and, in a large measure, accounts for the very high rate of mortality which has prevailed during those months. In the last week of July it had risen to 32 per 1000, and in the second week in August it reached the terrible mortality of 38 per 1000. In the first two weeks of August, there was an actual decrease in the population; the excess of deaths over births being 48. The death-rate throughout the country generally for the last two weeks in July was 29 per 1000, showing that the causes tending to increased mortality were widespread and general.

From the accounts received from the practitioners in Sheffield, there is no doubt that the diarrhea was of a very malignant type. There is not much difference, if any, between the general sanitary condition of the city this year and last,

so that it is not likely that the reason for the excessive mortality will be found in neglect of all the usual and ordinary precautions. Probably the heat wave which passed over the country in the months in question had no small share in the mischief done; and, if extra heat has anything to do with increased production of disease germs, there was an excellent soil to work upon, since in Sheffield there is undoubtedly insufficient drain-flushing in very hot, dry weather.

Of all the social problems of the present day, there are few of greater importance, greater interest, or greater difficulty than that which deals with the removal, with due regard to the safety of the public, of the refuse and excrementitious matters of our ever-increasing large towns and cities.

Case of Fibrinuria.⁸

The author first analyzes the four recorded cases in which fibrinous clots are passed in urine that had been previously recorded regarding this condition. His case was that of a male, aged 52 years, who had been ill for fifteen months with cough, headache and dyspnea on exertion, to which had recently been added swelling of the extremities and rigors. Examination led to the diagnosis of Bright's disease; the urine was acid, of specific gravity 1013, and contained a large quantity of albumin, with numerous hyaline and epithelial casts.

Treatment consisted in hot baths and milk diet, and the patient improved considerably, the edema almost completely disappearing. Ten days after admission it was noticed that the urine, which was slightly alkaline, contained a large number of grayish-white clots, some rounded and others flattened, and varying in length from half an inch to four inches; some were as much as two inches thick. These, if allowed to stand, settled to the bottom, and the supernatant urine sometimes showed further curious phenomenon in the shape of fine threads, which formed a network extending throughout the fluid. On shaking, this became detached from the sides of the vessels and formed a well marked clot; the urine had thus clotted just like a serous fluid.

The amount of deposit remained con-

stant, except just before a rigor, when it diminished to return to its former amount with the subsidence of the temperature. If the clot were allowed to remain in the urine for a few hours it disappeared entirely, probably by a sort of process of self-digestion. Chemic examination proved the clot to be composed of fibrin. The urine from which it was deposited showed, as compared with that at other times, alkalinity, much diminution in solid content, an especially minute amount of phosphates, but an enormous quantity of albumin.

There could be no doubt as to the renal origin of the fibrin, but it was very hard to define its pathologic cause. Evidences of nephrolithiasis, kidney abscess, etc., which had been present in former cases were here wanting; nor did hematuria ever appear. Klein attributes the coagulation to the alkaline reaction, the large quantity of albumin, and the almost complete absence of phosphates; it bore also, no doubt, some relation to the sudden rigors and rises of temperature.

Some time after the completion of the experiments the patient became worse and died; the kidneys were found to be in a condition of amyloid degeneration, and the tubules contained hyaline masses and threads giving Weigert's reaction for fibrin. Klein adds the notes of analyses of two other kinds of clots. The one was found in the urine in a case of cystitis; it consisted of a nucleo-albumin inclosed in a capsule of mucin. The other was a cast from a patient suffering from plastic bronchitis, and this failed to give the fibrin reaction either in bulk or in section; it consisted of mucin, and contained large colonies of diplococci.

A Pun That Cost a Life.

According to Stowe, Sir William Coldingborne was executed in 1484, during the reign of Richard III, for making the following pun, which, in his day, was considered excellent wit:

"The rat, the cat, and Lovel the dog,
Rule all England under the hog."

Ratcliff, Catesby, and Lovel were the chief agents of the King's wicked schemes. On the royal escutcheon was a white boar.—*Curious Questions.*

⁸ DR. A. KLEIN, *Brit. Med. Jour.*

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PHILADELPHIA, SATURDAY, OCTOBER 23, 1897.

EDITORIAL.

REFILLING PRESCRIPTIONS.

We have an old prescription which had been carefully treasured in the family for at least two generations before it fell into our unappreciative hands. It is undoubtedly an orthodox formula of the old-time physician, containing numerous vegetable ingredients, of which burdock is, perhaps, the most alarmingly medicinal. How often has every practicing physician had a patient produce from a wallet a prescription not much less ancient, and ask if it is not applicable to his present ailment, or compare it with the one just received with the air of a connoisseur judging the relative merits of two works of art. An old friend relates a rather discouraging experience in the way of a repeated prescription. He once gave a formula for a quinin mixture to a canal boatman. Years afterward, he happened in a drug store where, from a copy of the original prescription, the clerk was just dispensing the preparation to one of the next genera-

tion of boatmen, afflicted with plasmodia many generations removed from those of the original patient. Entering into conversation with the purchaser, our friend was informed that the formula was one of "Old Doctor ——" (his own name) who was long since dead, but whose good works lived after him in that that prescription "had cured all the ague on the canal for the last thirty odd years." And the doctor refrained from asserting that he was still alive, and from kicking from the loss of practice that the unauthorized refilling of the prescription had cost him.

Somewhat recently it has been decided—or re-decided—in court that the written prescription is the property of the druggist who fills it, and that he is at liberty to refill the prescription at any time, but that in so doing he acts purely as a merchant and on his own responsibility. That is to say, the physician cannot be held for any harm resulting from the un-

authorized issuance of medicine. Whether the druggist could be held for damages in case of bad effect from repeating a prescription at the solicitation of a patient or his friends, is, we believe, an undecided point, and one on both sides of which much might be said. A pharmaceutic journal, commenting on this topic, suggests that the physician should not fail to write "Do not repeat" on any prescription which would become dangerous from too long use. The editor expresses the opinion that few druggists would take the responsibility of renewing a prescription so marked. This is doubtless true, yet, from personal experience, we can testify that there are some who will repeat distinctly dangerous prescriptions even when marked "Do not repeat."

The matter of repetition of prescriptions involves two distinct principles, the commercial interest and the right of the physician, and the safety or, at least, the welfare of the patient. Some things are, by their nature, purchased for indefinite use, others for use only at one time. Thus, a man purchases admission to a society and gains the right of entry for a year or a lifetime; he purchases admission to a place of amusement, and he is a thief if he re-uses his ticket. No general rule can be laid down, but each must be decided by the common sense of values transferred. In deciding the business ethics of the repetition of a prescription, two questions must be asked: Is the formula something which is of value to the purchaser on one or an indefinite number of occasions? and, Is the price which he pays a fair compensation for use at one time or whenever he chooses? The same questions would apply to the single or multiple use of a railroad ticket, a postage stamp, or any other commodity, and to a professional reader we need scarcely say why the latter question should be answered in the same way for the prescription as for the ticket and the stamp. The laity fail to distinguish

between the purchase of a formula for some common domestic or mechanical use and for use medicinally. It seems to us that the essential difference is that the former represents information which, in the nature of things, must be subject to indefinite use while the prescription does not carry any adequate information to the patient. For example, a housewife wishes some cement which will stick together two parts of a broken utensil. The indications for its use are perfectly clear to her, she knows how to apply it, she simply lacks information on the single point of ingredients. The patient buys a prescription—or rather he looks at the transaction in that way—but he does not know the indication which his case presents except in a crude way that may be entirely misleading to him; he does not know the method of application nor the *modus operandi* of the medicines, in most instances he does not even know what those medicines are. In short, he is not buying information at all, but carries the prescription to the drug store as an utterly irresponsible if very much interested agent.

A pharmaceutical contemporary, in discussing the proposed legislation in a middle-western State to forbid repetition of prescriptions, emphasizes the disfavor which will fall upon the medical profession on account of such legislation, taking the ground that patients will consider themselves defrauded and will change physicians till they find one who will consent to the indefinite repetition of a prescription without additional charge. This contemporary suggests that however careful physicians may be to put forward the welfare of the patient, their own self-interest will become manifest. It seems to us that the best way to deal with this problem is to carry the war into Africa. Instead of leaving the patient to detect the self-interest of the physician, put that interest to him frankly. Let him understand, as in any other transaction that has the busi-

ness element in it, that such transaction involves approximately equal values. Entirely aside from the fact that he can not tell what kind of a cough or dyspepsia or fever he has and can not estimate the exact indications for medicine, ask him

plainly if a dollar, more or less, is an adequate fee for the treatment of any one ambulant malady throughout an indefinite period, and not only for himself but for any one with whom he chooses to share his prescription.

CLEANLINESS AS A RACIAL CHARACTERISTIC.

The revelations of the value of cleanliness, which the progress of bacteriology has made almost common knowledge may, so far, at all events, be regarded as a distinguishing feature of the age. In this connection surgeons who practice Listerism successfully may fairly claim to be the exponents of an ideal morality. The ideal that they aim at is the sterility of the pathogenic micro-organisms in their operation wounds, or the exclusion from their work of those agents of evil whose presence is purely the result of the neglect of cleanliness. If, then, the practice of cleanliness is the symbol of a high morality, the followers of Lister must be something more than mere surgeons. But this, by the way; the purport of these remarks is not that of discussing the morality of cleanliness, but to draw attention to some curious misconceptions of a writer upon this subject in an American contemporary. It is, of course, natural that he should begin with the assertion that America is the only clean country in the world; that America, also, is the only country in the world that has a clean and healthy water-closet system. But, having delivered himself of this opinion, he proceeds to make some further astounding statements. "American women," he says, "as regards ablutions, are the cleanest women in all the world. A French woman bathes about once in three months"—or does the writer mean that she has a "bath" once in that interval of time—"and an English matron douses herself thoroughly about twice—semi-annually." As a matter of pure curiosity it would be interesting to learn whence the writer derived the information upon which this assertion was based. Why, too, has he so ungallantly visited the sins of uncleanness upon the "matrons"? "You may detect," he says, "the sudarous (*sic*) odor of the British matron at

forty feet." In the absence of any definite statement as to whether a careful measurement was made of the distance, we must decline to concede this point. Nevertheless, we are not prepared to dispute that the assertion is a valuable testimonial to the integrity of the writer's olfactory sense, assuming, of course, that he is correct as to his facts. In an editorial capacity we never prescribe for patients. Upon this occasion, however, we feel disposed to depart from that estimable regulation. Presumably the writer whose remarks we have taken leave to quote is in need of some medicament calculated to give him a less jaundiced view of matters upon which he affects to speak with so much knowledge. Quite possibly, therefore, several blue pills might have the desired effect, and, "without prejudice," we commend to him this old-fashioned remedy as a cure for the yellow hue of melancholy with which he seems to be pervaded.—*Medical Press*.

Nebraska has a sleeping boy. He is fourteen years old and has always required more sleep than most boys of his age, often spending sixteen or eighteen hours in bed. For the last three months he has remained in bed altogether, during which time he has barely opened his eyes half a dozen times. Food in liquid form is forced into his mouth and swallowed.

Lord Nelson's old battle-ship, "Foudroyant," was fitted out not long ago as a Nelson museum and exhibitions given at various English seaports. An enterprising patent-medicine man one night caused to be painted on her side an advertisement recommending a certain kind of pill. At the Liverpool assizes he was fined \$260 for defacing the old battle-ship.

ABSTRACTS.

A REVIEW OF THE TUBERCULIN TREATMENT.*

Although five months have passed since the announcement of Koch's New Tuberculin, not much progress has been made in determining its value. The new tuberculin essentially differs from the old, not merely in its mode of manufacture and chemical constitution, but also in its effects on the body. The old tuberculin, it will be remembered, was prepared in the following manner:—A culture of tubercle bacillus was grown for six or eight weeks in a slightly alkaline veal broth to which had been added 1 per cent. of peptone and 4 or 5 per cent. of glycerin. The culture and the culture fluid were then placed in a water bath at a temperature of 100° C., and kept there until the fluid was reduced to a tenth of its volume. It was then filtered through porcelain, the filtrate being tuberculin.

The process of reasoning by which Koch has been led to prepare the new tuberculin is of great interest. Two kinds of immunity are now recognized. One is immunity to the toxin produced by the bacilli; the other is immunity to the bacilli themselves. We know that animals can be immunized against the toxin of tetanus but not against the microbes, while in the case of enteric fever and cholera they can be immunized against the microbes but not against the toxins. Immunity, to be complete, should combine both these elements.

Is there any natural immunity produced in the case of tuberculosis? The ordinary course of pulmonary phthisis does not encourage this hope. The malady may go on for years without any sign of immunity appearing, and even when arrested it is liable to break out afresh.

Certain facts appear to suggest that immunity is possible. In acute miliary tuberculosis in man and experimental tuberculosis in guinea pigs there is a stage in which the bacilli, at one time in abundance, become so few that they are diffi-

cult to find. This disappearance is the more remarkable because ordinarily the bacilli are absorbed very slowly indeed. In this case there is probably a process of immunization purely bacterial which occurs too late to be of benefit.

In these cases of apparent immunization the body is, as it were, inundated in a short time with the micro-organisms. Immunity only comes after absorption or digestion of the bacilli.

This appears to explain why, in ordinary circumstances, there is no immunity. The bacilli reach their development only in small numbers in the human organism. They are environed by dead tissues, and are only absorbed long after, when they are themselves dead and have undergone profound changes. In the parts where the tubercles grow, as in cavities and at the surfaces of mucous membranes, the bacilli are eliminated without undergoing modifications, and are not absorbed at all.

Attempts made to produce an artificial immunity by inoculation with either living or dead cultures have altogether failed. If very small amounts of dead cultures are injected from time to time, they are generally absorbed, with no local or general result except the production of emaciation. But such injections effect no immunization, for if a larger dose be injected a local abscess is produced, in the pus of which for some weeks tubercle bacilli can be recognized.

The problem which Koch set himself to solve was how to bring about artificially that inundation of the body with the poison contained in bacilli, as occurs in acute tuberculosis, and produce an immunity to them without any harm to the body itself.

Tubercle bacilli have been found to contain two important chemical substances belonging to the class of non-saturated fatty acids. One of the acids is soluble in dilute alcohol, and is easily saponified by solution of soda. The other only dissolves in boiling absolute alcohol or ether,

* HECTOR MACKENZIE, M.D., F.R.C.P., in *Practitioner*, October, 1897.

and saponifies with great difficulty. The two acids stain in the same way as the bacilli. They form a continuous layer in the body of the bacillus, and are the cause of its resistance to absorption.

The old tuberculin simply contained such constituents of the bacilli as were soluble in glycerin. This substance proved to be highly toxic, and to produce no immunity. Koch thought the other substances not soluble in glycerin, could a mode be devised of separating them, might produce the desired effect. He has described three new tuberculin products, but only one of these is an improvement on the old. The first preparation was made in the following way: The bacilli were intimately mixed with a deci-normal soda solution, and this for three days was frequently shaken up. The liquid was filtered and neutralized. The result was tuberculin A, a clear, slightly yellowish fluid. It was not free from bacilli, which, however, the mode of preparation had killed.

Tuberculin A, even in minute doses, gives rise to reactions similar to those of ordinary tuberculin, but of somewhat longer duration. From the presence of dead bacilli the larger injections gave rise to sterile abscesses. This inconvenience led Koch to abandon its use.

He next set himself to disintegrate the bacilli. After various attempts, he succeeded in doing so by rubbing up dried bacilli in an agate mortar with a pestle of the same material. The powder so produced he mixed with distilled water, and centrifugalized the resulting liquid. This separated the liquid into a clear fluid and a sediment. The upper layer he calls tuberculin O (oberste). The sediment is dried and pulverized, mixed with distilled water, and centrifugalized. The resulting clear fluid is tuberculin R. The process can be repeated with the remaining sediment. Fluids are obtained in this way which do not essentially differ from the result of the second centrifugalization.

If 50 per cent. of glycerin is added to tuberculin O no precipitate is formed, but the addition of the same to tuberculin R causes a dense cloud. Tuberculin O then resembles the old tuberculin in containing those principles of the bacilli soluble in glycerin, while tuberculin R contains those which are not.

T O possesses properties exactly similar to those of T A and the old tuberculin, except that, unlike the former, it does not produce abscesses. It has, moreover, little immunizing power.

T R, on the other hand, is, according to Koch, possessed of high immunizing power, and in small doses produces no reaction. T R contains all the immunizing factors of the cultures of the bacilli. A man immunized to T R is also immunized to large doses of ordinary tuberculin, or T O.

Twenty per cent. of glycerin is added to the liquids in order to preserve them.

T R contains 10 milligrammes of solid substance in the cubic centimetre. The dose to begin with is 1-500 milligramme of the solids, or .002 c. centimetre of the liquid. It is diluted with the proper amount of normal saline. This dose ordinarily produces no reaction, but if it does, it must be diluted still more. The injections are made every two days, and the doses slowly increased, care being taken to avoid reactions. Doses of 20 milligrammes of solid substance are reached in this way.

In order to immunize animals, it is necessary to inject doses as large as can be absorbed. Guinea pigs are readily rendered immune to virulent cultures.

In the case of animals previously inoculated with tuberculosis, injections of T R modify the course of the disease and set up retrogressive changes.

Immunization shows itself two or three weeks after the employment of large doses. A complete cure when tubercle is already established can only be obtained when the treatment is started early, one or two weeks after inoculation.

In man, immunizing effects cannot be expected until doses of $\frac{1}{2}$ to 1 milligramme are reached. No advantage can be expected in advanced cases, or in cases where there is evidence of mixed infection.

In cases of lupus great amelioration has been brought about although local reactions are almost absent.

In the case of pulmonary tuberculosis, the only local symptom produced consists in a temporary increase of râles. The expectoration diminishes, and often disappears altogether, together with bacilli; dullness and crepitation also diminish in extent.

No disturbing constitutional symptoms have been observed; there is increase of weight from the beginning. The temperature gradually becomes more and more nearly normal.

Koch concludes that, although the mode of administering the remedies may possibly be improved on, the preparations themselves cannot possibly be made more nearly perfect. Whatever therapeutic results can be obtained from cultures coming from tubercles ought to be given by these preparations.

The majority of the reports so far published regarding the new tuberculin are not at all favorable. E. Solles adopts an attitude altogether antagonistic. He considers that Koch is altogether too theoretical and too little experimental and practical in all that relates to this new substance. The idea at the bottom of all that Koch has to say is that the curative element of tuberculosis is the tubercle bacillus.

L. de Nencki, L. de Maczewski, and A. de Logucki, of Warsaw, have brought forward serious objections to the new tuberculin as supplied at present, and traverse Koch's statement at the end of his article, above referred to, that the mode of preparation has now reached a state of perfection. They point out what Koch admits; that the trituration of dry cultures is a dangerous proceeding. They consider it much easier and less dangerous to prepare the new tuberculin by submitting pure fresh cultures to high pressure, as is done in obtaining the different kinds of serum employed in serum therapeutics, and then to submit only the compressed cultures to centrifugalization. This suggestion, however, was first made by Prof. Hans Buchner, of Munich, who also demurred to Koch's statement that the preparation could not be further improved. Already in 1893 H. Buchner, along with his brother, E. Buchner, of Tübingen, had put into practice the method now adopted by Koch of mechanically breaking up bacilli, but were not satisfied with it. Ultimately they adopted the following plan. The living cultures of tubercle bacilli were powdered in a moist condition with the help of fossil meal and fine sand, and then submitted to a pressure of four to five hundred atmospheres.

The objection of the Polish scientists

that the new tuberculin is sent out in bottles containing 1 c.c., corked with an ordinary cork, has already been remedied. Their next objection is a more real one. The dose being so minute, it is necessary to make a dilution which must be used within twenty-four hours. The method of dilution is not an easy one, and great waste will occur unless there are many patients to be treated. Koch states that the new tuberculin produces no reaction in the doses he recommends. The specimens used by the authors, however, produced marked reactions, and were found to contain pneumococci, staphylococci, and streptococci, and to give rise to cultures of the same when sown upon glycerin agar. They consider that at present the new tuberculin can only be used when it has proved to be sterile, and that the dosage and present mode of supply are extremely inconvenient for general use. Those who have used the new tuberculin in this country will certainly agree with these observers that the inconveniences attending the mode of administration are at present too great for it to be employed except where a number of patients can be treated simultaneously.

G. Schröder, of the Heilanstalt at Hohenhonnef, gives his experiences of three cases treated with the new tuberculin. The result of the treatment was in each case that the patient became worse. The reaction in all three was occasionally severe and attended with the same symptoms as those of the old tuberculin. In the first case the physical signs increased and extended, the expectoration became more abundant and contained more bacilli, and there was loss of weight. The cases seemed favorable for the trial of the treatment, as there was no fever, no evidence of mixed infection, and no sign of activity, while the general strength was good. Schröder's results are very different from those of Koch. He has confirmed the Polish observers in finding various microorganisms to be present in the fluid. He considers that it would have been better if Koch had published full particulars of the cases treated with the new tuberculin at the same time as he announced the remedy. In this way physicians would have had some better guidance as to the cases to treat. A treatment which can be applied with benefit to the earliest

cases, and is very expensive as well as uncertain, leaves much to be desired.

A modified form of tuberculin has been introduced by Prof. Hirschfelder, of San Francisco. It was first obtained by treating Koch's old tuberculin with peroxid of hydrogen. The professor has since improved the preparation. He now grows a highly virulent tubercle bacillus upon veal broth containing 4 per cent. of glycerin, 1 per cent. of peptone, and $\frac{1}{2}$ per cent. of chlorid of sodium, to every litre of which when neutralized, 3 c.c. of a normal solution of sodium carbonate is added. After the culture is fully grown, which occurs in three weeks, the flask is sterilized by heat for two hours and the contents filtered, a measured quantity is put into a stone jug, and one-tenth the quantity of a ten-volume solution of peroxid of hydrogen is added; the jug is stoppered with cotton and put into a sterilizer at 100° C. Every twelve hours the same quantity is added until the process has been repeated a tenth time. This is then heated to 100° C. for twelve hours longer. At the end of the time, 120 hours in all, it is found to contain free peroxid, to be highly acid, and decidedly darker than the original tuberculin. It is made alkaline with caustic soda and heated to drive off the excess of peroxid. Five per cent. of boric acid is added to keep it from decomposing. It is filtered into sterile vessels and is ready for use. This method of preparation differs from that originally employed in the duration of the sterilization. Very large doses of this fluid may be used for injection. As much as 40 c.c. has been given. This oxytuberculin made alkaline, added in equal parts to a culture medium such as above described, absolutely inhibits the growth of the bacillus. Ordinary tuberculin similarly made alkaline has no such effect. The inhibition was specific for the tubercle bacillus. The growth of other organisms was not affected. Similar experiments were made with oxytoxins derived from other microbes, and similar results were obtained. Of the patients treated, those who came in the early stages were rapidly cured, while even more advanced cases were benefited.

Kasperek has made some useful experiments on the action of the old tuberculin in animals. He found that eight times as much avian tuberculin as human was re-

quired to produce reaction in guinea pigs. He has attempted to determine the interval of time which elapses before the body of an animal reacts to tuberculin after inoculation with cultures of tubercle bacilli. Reaction was obtained in thirty-six to forty-eight hours after injection of bacilli into the abdominal muscles, and in six days after daily inhalations of infected air lasting an hour each. Animals weakened by diphtheria toxin were found to react, but the fever produced in them lasted five or six hours longer than that in tuberculous animals.

Mouton, of Leyden, has discussed the value of ordinary tuberculin in diagnosis, and maintains that however useful it may be in the recognition of tubercle in cattle, it is little helpful in the case of man. Dr. Mouton has only treated twelve patients, but he says these gave him so much to think about that he hesitated to inject others. Of the twelve, seven reacted more or less. From the study of the literature of the subject it would appear that it is necessary to use from 1 to 10 mg. for the diagnosis of tubercle; that there is no certainty as to what amount of rise of temperature should be considered a reaction; that non-tuberculous individuals may give a reaction, while tuberculous may not react after injections up to 10 mg.; and that the method not only may be the cause of errors, but is positively dangerous.

In the case of cattle it is quite different. The injection of from .3 to .4 c.cm. of tuberculin, according to the size of the animal, produces quite regularly a rise of temperature of from 1.5 to 3° C. if tubercle is present. The injection of the same dose produces no effect if the animal is non-tuberculous. The reaction should occur in twelve to fifteen hours, rarely in nine or ten, and should last several hours.

In the case of very tuberculous cattle, no obvious reaction may be observed. A rise of temperature of less than .8° C. has no value, and it is only a rise of over 1.4° C. which has a positive diagnostic value. If a rise between .8° C. and 1.4° C. occurs, a second injection with a larger dose should be made. Even in the case of animals there are some 10 to 13 per cent. of mistakes in diagnosis.

Maragliano obtained a reaction in 9 per cent. of the healthy and in 23 per cent. of

persons suspected of tuberculosis. As much as 10 to 25 milligrammes were used in cases which failed to react to smaller doses.

Dr. E. L. Trudeau, of Saranac Lake, N. Y., has been employing tuberculin during the past five years to determine the presence or absence of tubercle when diagnosis could not be made by the ordinary methods. He has used it in fourteen cases, seven of which reacted. He never used a higher dose than 3 mg. Six cases reacted with a dose of 2 mg. or under. Of the seven which reacted, six showed at some time or other clinical evidence of

pulmonary tuberculosis; the other was lost sight of and reported dead. Of the seven which did not react, two passed from observation, but the others remained well. In his experience, the reaction usually begins within six or eight hours, and on that account the injection is best given early in the morning or late at night. The initial dose should be .5 mg. If this gives no reaction, on the third day a dose of 1 mg. may be given, and if this has no effect, a third of 2 mg. If slight symptoms are produced by a dose of 2 mg., a fourth injection of 3 mg. may be necessary to attain a positive conclusion.

ACUTE ABDOMINAL DISTENSION IN CHILDREN.*

Acute abdominal distension as a complication of diseases which do not primarily affect the gastro-intestinal tract or peritoneum, has received but little notice in the literature of diseases of children, although it is especially prone to occur in the earliest years of life. The condition which is here described is a rapid and often extreme distension of the abdomen, which supervenes usually in the course of a severe illness, and generally, but not always, shortly before death. Unlike the meteorism of acute peritonitis, or acute inflammatory conditions in the intestine, this form of abdominal distension may occur without obvious local cause. In some cases, however, the primary disease has been complicated by diarrhea before the distension appeared, and from the pathologist's point of view it might then be more strictly accurate to consider the distension as a complication of the secondary diarrhea or gastro-enteritis, than of the original disease. Clinically, however, acute abdominal distension has the greatest practical importance as a serious complication of the original disease. For although in some cases it seems to be merely a part of the process of dying, it certainly hastens death in almost every case, and in some it appears to be the actual determining cause of death; moreover, a fatal termination does not always follow the appearance of this complication, and even if treatment fail to secure recovery it may

prolong life, or at least render the last minutes or hours of the child's life more comfortable.

The condition will perhaps be described most clearly by a record of some cases which have occurred recently at the Hospital for Sick Children. For permission to make use of these cases I am indebted to the kindness of the physicians of the hospital.

Case I.—Clara M., aged sixteen months. Admitted with history of nine days' cough and feverishness, with some vomiting; bowels loose.

Pale, thin child with physical signs of extensive broncho-pneumonia; abdomen normal. The lung condition became gradually worse, and temperature remained high until five days after admission, when it fell to subnormal, and the child became worse and seemed in much distress. "At 1 P. M. to-day the abdomen became almost suddenly tensely distended. The distension was general, but seemed to be most marked in the region of the transverse colon, the outline of which could be seen. The ascending colon also in the right flank seemed to be greatly distended. The child was extremely restless, flinging the arms about and trying to cram the bedclothes into its mouth; lips were blue; sweating was profuse. Some evident relief was given by placing the child on its side, but injections of strychnin, passage of a soft catheter per rectum, and administration of enemata failed to relieve the distension, and the child died at 4.45 P. M."

* GEO. F. STILL, M.D., M.R.C.P., in *Pediatrics*.

Post Mortem.—Very extensive broncho-pneumonic consolidation of both lungs, with very acute pleurisy both sides. Some turbid serum in the pericardial sac. The abdomen was unevenly distended as in life, the left hypochondrium appearing to be more distended than the right. The transverse colon was greatly distended and occupied the greater part of the abdominal cavity above the level of the umbilicus; it made a kink upwards in the left hypochondrium. The ascending colon also was much distended. The distension ceased abruptly at the splenic flexure; the descending colon and rectum were quite contracted and empty. The distension was entirely gaseous, with the exception of a small amount of semi-fluid fecal matter in the cecum. Small intestine contained some gas, but was not abnormally distended; the stomach contained curdled milk, but was not distended.

Case II.—Hayman K., aged eleven months. Admitted with history of two months' bronchitis, occasional vomiting, no diarrhea. Pale, rickety child; rapid respiration, but not distressed. Signs of broncho-pneumonia, chiefly on right side. Abdomen full, but supple. Four days later the child was much worse; temperature continuously 101° - 105° , and in the evening the abdomen became greatly distended. Next morning abdomen was tense and shiny, almost balloon-like. Lips now livid, and cry feeble as if in pain. The child seemed decidedly more comfortable when lying on the side than when on the back; scarcely any relief was given by passing a long tube per rectum, or by turpentine enema. Death occurred at 6.15 P. M.

Post Mortem.—Small post-pharyngeal abscess; pleural adhesions; extensive broncho-pneumonic consolidation of both lungs. The abdomen was tensely and uniformly distended. The small intestines were greatly distended with gas throughout, so that they completely hid the large intestine and stomach, which were collapsed and empty.

Case III.—Edgar W., aged twelve months. Admitted with history of one month's vomiting, headache and fretfulness. Bowels costive. Feeble child, somewhat rickety; head large, but not retracted; quite blind; lungs seemed normal. Abdomen slightly full. Two days after admission convulsions began, and lasted

several hours. After these ceased, patient seemed extremely ill, and about 10.30 A. M. on the third day after admission the abdomen suddenly became much distended, and death occurred half an hour later.

Post Mortem.—The usual lesions of simple posterior basal meningitis. Lungs showed some collapse, and "probably some very early commencing broncho-pneumonia, but hardly definite consolidation." Abdomen greatly but unevenly distended. A marked prominence was visible on the left side of the epigastric region. The stomach was greatly distended with gas, displacing the transverse colon, and small intestine downwards. It contained about one and a half ounces of curdled milk, so that the distension was almost entirely gaseous. There was a little gas in the small intestine, and the sigmoid flexure was slightly distended.

Case IV.—Victor W., aged nineteen months, suffering from splenic anemia. Had been in the hospital eight weeks, and seemed in its usual condition; bowels rather costive. About 11 P. M., however, one night, the abdomen became rapidly distended with gas, and the child died very suddenly at 4 A. M.

Post Mortem.—Stomach and colon above the sigmoid flexure were found greatly distended with gas. The heart was displaced by the abdominal distension. All other organs except the enlarged spleen seemed normal.

Case V.—Lydia C., aged two years and four months. A rickety child with broncho-pneumonia following measles. On May 7 there was some diarrhea, and enormous distension of the abdomen appeared; respiration rapid, and much distress. May 9 child extremely ill, but abdomen becoming more supple. The abdominal condition improved till May 16, when, although diarrhea had ceased, great distension again appeared. Child's condition appeared almost desperate, but from this date abdomen gradually became more supple, and resumed its normal size. The child made a complete recovery.

The above cases were all in children under three years of age, and acute abdominal distension would certainly seem to be far commoner during the first three years of life than in later childhood.

It occurs as a complication of various diseases, but particularly of broncho-pneu-

monia. I have known it to occur in acute cerebrospinal meningitis, and in acute tuberculosis, as well as in splenic anemia and chronic simple basal meningitis.

The onset of the abdominal distension is usually very rapid and occurs generally late in the disease, when the child is becoming exhausted. It is, however, certainly not to be regarded as necessarily only a part of the process of dying, for it supervenes sometimes where there is no reason for supposing the immediate approach of death, and rarely the child may recover after the abdominal distension has appeared. In Case III it may have been only one of the phenomena of dying; but here probably, and certainly in Cases I and II, it hastened death, while in Case IV it appeared to be the actual cause of death. The possibility of recovery is seen in Case V.

The evil effects of this condition are in most cases manifestly due to the interference with the action of the diaphragm, as is shown by the rapid and labored respiration; but in some, as in Case IV, it seems likely that there is also interference with the action of the heart which may cause sudden death.

The occurrence of acute abdominal distension is therefore always of grave significance.

The morbid anatomy shows three main varieties of abdominal distension, according as (1) the stomach, (2) the small intestine or (3) the large intestine is involved; either of these parts may be affected separately, or any combination of these varieties may occur, or all three parts may be distended together. The distension is probably due in all cases chiefly to loss of tone in the gastric or intestinal walls owing to the exhausted condition of the child; but other factors are probably often present, such as catarrhal conditions of the gastro-intestinal tract.

The treatment of acute abdominal distension must be prompt and vigorous, for the respiratory difficulty caused, especially when there is already serious lung disease, very rapidly exhausts a feeble infant. The first and simplest measure is to raise the child's shoulders by propping it up with pillows, and to make the child lie on its side, not on its back. In most cases distinct relief is obtained, as might be expected, when the pressure on the dia-

phragm is thus to some extent diminished. Hypodermatic injections of strychnin and brandy, or ammonia and ether by mouth are the most useful drugs wherewith to combat the general exhaustion of the child. If there is time creosote in minim doses by the mouth may be of great use in decreasing the gaseous distension; in Case V recovery seemed to be largely due to the use of creosote. Usually, however, the child's condition is so urgent that it seems imperative to try local measures. These, however, are less useful than might be expected.

The passage of a long soft tube (a soft catheter will serve the purpose) per rectum, may bring away some of the gas, but more often it fails, and the failure is easily understood when it is seen post mortem that in most cases where the colon is distended throughout the rest of its course, the sigmoid flexure, so long and tortuous in early childhood, and the rectum also, are tightly contracted and empty, while in other cases the small intestine only is involved, so that it is impossible to make a soft tube reach the distended portion. In some cases, as in Case III, it may be suspected from the localized distension that the stomach is specially affected, and under these circumstances the passage of an esophageal tube has given great relief.

Enemata of soap and water, or of turpentine, have generally proved useless, and if retained they may aggravate the distension, but they are worth a trial. Finally the question of puncturing the intestine may be raised. I have had no experience of it, but have sometimes thought that it would be justifiable as a last resource.

From a careful consideration of the statements which have been made in various medical journals and text-books we think it may be concluded that where the so-called cumulative action of digitalis is denied an existence, the person making a denial has not a very clear idea of what is meant when such a condition is described, and with a few exceptions we think it will be found that those who have denied its existence are usually careless in studying the effects which are produced by the administration of their remedies.—*The Jour. A. M. A.*

PERISCOPE.

A New Theory of the Cause of the First Sound of the Heart. (QUAIN, *Brit. Med. Jour.*) Two of the chief events which take place during systole, namely, the closure of the auriculo-ventricular valves and the muscular contraction of the ventricular walls, are regarded by many authorities as the source of the first sound. The results of Quain's latest investigations lead to the conclusion that none of these explanations are satisfactory. He points out that the auriculo-ventricular valves do not contain the necessary mechanism for the production of the sound, and from the fact that it can be heard independently of the existence and action of mitral and tricuspid valves, and that in some of the lower animals, especially reptiles, these valves exist only in a very rudimentary form, and that in such animals the first sound is distinctly heard, he concludes that "the weight of evidence is clearly against the possibility that the structure or the functions of the auriculo-ventricular valves is the source whence proceeds the first sound of the heart." Another reason for his rejecting the generally accepted theory for the first sound of the heart is that the feeble sound emitted by even large masses of muscle powerfully contracting is not to be compared with the characteristic booming of the systolic sound, and he points out that the contraction of the heart of a turtle removed from the body gives no such sound, even in a modified degree. Having thus considered the generally accepted view, he gives evidence to show that the first sound is produced by the impact of the blood driven by the action of the muscular walls of the ventricles against the block produced by the columns of blood in the pulmonary artery and aorta, which press upon the semi-lunar valves. His reason for this conclusion is that sound must be conceived to be a phenomenon resulting from resisted motion, and the movement of the blood is directed against a fixed and definite resistance, as that of the blood pressure in the aorta and pulmonary artery.

Dr. D. W. Montgomery, of San Francisco, reported at the late meeting of the *American Dermatologic Association* the case of a man thirty-five years of age who had been troubled from his birth with a constant shedding of the finger nails. His mother had been affected in the same manner, in her case the nails being shed every eight months. Two uncles were similarly troubled. No cause could be assigned for this peculiar manifestation, and it was not associated with any change in the hair or teeth.

Pfeiffer and Kolle claim from the results of their experimental work on guinea-pigs and on human beings that they have obtained evidence to demonstrate that the latter can be protected against typhoid fever by inoculation of small doses of dead typhoid bacilli. It has been discovered that persons inoculated with increasing doses of living or dead cholera bacilli were rendered immune against cholera; hence their conclusion for a similar procedure with the typhoid bacillus. A typhoid agar culture was made in bouillon; the bacilli were killed by keeping the suspension in an incubator for several hours at a temperature of 56° C., and 1 c. c. was injected subcutaneously into the back of two individuals. Typhoid bacilli failed to clump or agglutinate with the serum secured before inoculation, while marked clumping was observed in the serum obtained after the inoculation. It was found that by a single inoculation with dead typhoid bacilli an antitoxic substance is produced, which has the same property of causing clumping of typhoid bacilli and rendering them immotile that the antitoxic substance in the serum of a patient ill with or convalescent from typhoid fever has.—*Medical Sciences*.

The cases in which the symptoms of tracheal tugging occurs may be divided into four groups: (1) Very slight up and down movement; (2) slight movement; (3) distinct tugging; (4) marked tugging. Examination of seventy-five patients with various conditions disclose distinct tracheal tugging in only seven. The heart was normal in two of the seven, hypertrophied in four, insufficient in one; possible aortic stenosis was present in another, and in one there was aneurism of the ascending aorta. Dr. Ross said he should expect tugging in cases of dilatation of the aorta.—*Medical Record*.

To Prevent Absorption of Perspiration in Orthopedic Corsets.—Vulpius has a tricot stuff made with a coating of the best rubber on one side. He applies this to the skin, or plaster cast, with the rubber side in smoothing out all wrinkles. It is perforated to allow for circulation of air. The corset is never worn next to the skin nor over the shirt, but over rather fine-meshed tricot underclothes which cling to the body without a wrinkle, and allow the air to circulate between it and the apparatus, which remains unaffected by the perspiration for two or three years.—*Cbl. f. Chir., Jour. A. M. A.*

American Women Students at Zurich University.—The length of time required for preparation is usually three to four years, except in the case of medicine, when five and a half years of very severe labor are necessary. A diploma from an American college is accepted in lieu of entrance examination. Certificates of successful teaching may also be accepted, but should be submitted in advance, as the decision appears to be made upon the merits of each case. In addition, a certificate of good character is necessary, and for an American, a passport. In the medical school, the entire course is laid down; elsewhere, no course is formulated, but each student is required to choose one major (Hauptfach) and two or three minors (Nebenfaecher). Work is carried on almost entirely by lectures and laboratory work, with occasional quizzes. The fees in Zurich are small. For a course of lectures coming once a week for a semester, the usual charge is 5 francs; for one coming twice a week, 10 francs, and so on. Seminars and quizzes are free. Even when a good deal of laboratory work is done, fees for the entire year rarely amount to more than \$60 to \$75. There is no university library. It is etiquette in Zurich for a student who is intending to take work with a given professor to call on him in advance at his house, preferably between 11 and 12 o'clock, to announce her intention, and, nominally, ask his advice. It is impossible to state too strongly that no woman should come to Zurich with the immediate intention of university study, unless she has not only a reading but a speaking knowledge of German. Zurich is not the place to acquire this knowledge; the dialect which one hears almost everywhere in place of German and the number of foreigners of various nationalities in the town make it unsatisfactory for the language student. The university recognizes two classes of workers—the matriculated students and the hearers. The hearers are received without test of fitness, but are admitted to examination and receive certificates of having attended given courses of lectures only through the courtesy of the lecturers. The matriculated students have a few privileges not granted to hearers, and usually, though not necessarily, take an examination. The latter consist of the teacher, the doctor and the State examination. Of these, the second is the only one likely to be of especial interest to the students who intend to return to America.

Dr. Rolleston, before the London Pathological Society, brought up the subject of **Dermatitis Maligna, or Paget's Disease.** Two cases were discussed, in both of which carcinoma had resulted. The first case was that of a man aged 60 years, who had the glazed, raw condition of the skin above the pubes characteristic of the disease for eight years; two years ago nodules of carcinoma developed. The whole affected area was

removed and the man recovered. A somewhat similar case, in which the scrotum and penis were affected, had been described by Dr. Radcliffe Crocker. The carcinoma probably developed from the sebaceous glands and not from the superficial layers of the skin. The sweat glands were dilated, but did not, as in Dr. Crocker's case, appear to be undergoing carcinomatous change. The growth was a spheroidal-celled carcinoma. The second case was that of a woman aged 45 years. The skin affection began eight years ago on the sinus of a mammary abscess and had spread most extensively. A year ago carcinoma developed. The whole affected area, together with glands from the axilla, was successfully removed. Microscopically the carcinoma appeared to be squamous-celled, showing a transition to a spheroidal-celled type, but no keratinization had taken place. The modification was probably due to the extensive inflammatory changes, which were also thought to be responsible for the extensive vacuolation seen in the epithelial cells. The carcinomatous growth had certainly not arisen in the mammary glands or in the ducts, as is often the case. It was suggested that Sir James Paget's name would best be honored by associating it with the actual morbid lesion, a long-standing dermatitis of the nipple which he originally described, and not with analogous lesions.—*Lancet.*

A Case of Poisoning by Trional reported in *L'Abbele Medicale* in which a man suffering from morphinomania, and who was accustomed to employ morphin daily, received habitually twenty grains of trional every night during a period of two months; or, to speak more exactly, twenty-one drachms in twenty-six days. After one month the patient found it difficult to rise, and was in a condition of continuous debility. He could with difficulty support himself, and the movements of his upper and lower extremities were exceedingly ataxic. There was tremor of the tongue, the feet, the hands and the muscles of the face. The walk was slow and labored. In attempting to speak the syllables were transposed, or in attempting to write they were so disordered as to make the spelling very incorrect. There was profound psychic depression and general intellectual feebleness, with involuntary passage of urine.—*Univ. Med. Mag.*

Senecio Vulgaris in the Treatment of Flatulent Dyspepsia.

B Sodium bicarbonate.....	1 drachm
Tincture of ignatia.....	40 drops
Tincture of senecio.....	1 fl. ounce
Syrup of bitter orange-peel..	1 fl. ounce
Alcohol containing ten per cent. of chloroform	2 fl. drachms
Water	6 ounces
M. S.: A tablespoonful three times a day.	

—*Revue Medicale.*

Dr. F. Parkes Weber, writing in a recent number of *Treatment* on the dietary suitable for patients at mineral water resorts, says that C. von Noorden, Karl Grube, and many others have pointed out that the true rules of diet to be observed whilst undergoing a course of mineral water are the rules suitable to the individual constitution of the patient and the complaint from which he is suffering. Among articles of diet which were supposed to be specially unsuitable at Carlsbad, butter and fats were the most noteworthy because they are such extremely important foods. The mineral water was supposed to prevent their proper digestion and assimilation. Not only was fat prohibited with sulphated alkaline waters, such as that of Carlsbad, but with muriated waters, such as those of Kissingen and Homburg. Recently, however, F. Kraus has shown experimentally that a course of sulphated alkaline water does not prevent the proper absorption and assimilation of the fat taken with other food; and C. Dapper had already proved the same to be the case in regard to courses of muriated waters, such as those of Kissingen and Homburg. Kraus gave considerable amounts of fatty food to patients suffering from complaints likely to be met with at Carlsbad, treating them at the same time with fair daily doses of Carlsbad (Mühlbrunnen) water, and he found that the percentage of the ingested fat which could be recovered again in the feces of these patients was not unduly increased by the use of the mineral water. Dr. Parkes Weber hereupon remarks that a fatty diet gives rise to trouble in certain cases independently of spa treatment, and in such cases the diet whilst the patient is at the spa will have to be regulated. For instance, patients who suffer from obesity or from gastric dilatation due to fermentation of the contents of the stomach must have their diet regulated with respect to fatty and fat-producing foods. There is no doubt that the facility for regulation of diet at some spas, such as Carlsbad, has greatly helped in their reputation for the treatment of certain afflictions, especially diabetes and obesity. Spas where by a strict *a la carte* system of dining the carrying out of dietetic rules is made comparatively easy are likely to outstrip their rivals where a *table d'hôte* system prevails. Moreover, the strict quantitative limitation of the evening meal must have had, and still does have, a wholesome effect at many health resorts. The patients can go to bed earlier after a light meal—a great advantage when they have to rise at a very early hour to drink the waters—and in most persons when free from excessive mental work the digestive powers are probably strongest during the middle of the day. In many persons, also, temporary discontinuance of strong tea or coffee in the morning can do no harm, and can best be carried out at health resorts during periods of rest from the mental work of ordinary life. The

substitution of farinaceous soup, etc., which formerly constituted the morning meal at various spas, might still often be recommended.—*Lancet*.

A. Pozzi (*Archivio di Ostet. e Ginecol.*) has treated successfully five cases of **severe vomiting in pregnancy** by the subcutaneous injection in the hypogastrium of a solution of cocaine hydrochlorate (1 cg. to 1 g. of distilled water). In four of these the pregnancy had reached two and a half months, in one only a month and a half. In two of the cases the treatment was begun in the second stage of the vomiting, when there was fever and when cerebral phenomena had begun to manifest themselves. In two cases the cocaine was given when the vomiting was still in the first stage, and in the fifth patient the author had to do rather with an exaggerated form of simple vomiting, than with the grave incoercible type. In all the cases a great number of other means of treatment—including in some replacement of the uterus—had been previously tried.

According to Dr. A. H. Heidenhain (Koslin), the successful treatment of **pruritus** consists in the application to the congested region of compresses soaked in very hot water mixed with a tablespoonful of tannin per litre, in order to prevent maceration of the epidermis. It is asserted that this simple and convenient treatment will cure pruritus in every case; but the patient ought to be informed that tannin leaves indelible spots on linen. With regard to pruritus of the vulva, in particular, Dr. Heidenhain lays down the following rules: Every evening just before going to bed the patient takes a vaginal injection with a solution of lysol, then another with tepid water, previously boiled, and lastly, a third injection with a solution of mercury bichlorid; the vulva is then carefully washed, and the patient applies between the labia majora a compress of gauze, charged with the hot solution of tannin. Should there be any excoriations of the mucous membrane, they may be cauterized with silver nitrate.—*N. A. Practitioner*.

In cases of **flat-foot**, where the deformity of the bones is such that the plantar arch cannot be replaced, the probability, and even the possibility of a cure by muscular action alone has been questioned; but is it probable that muscles are potent to develop the form of the body, to maintain the form, and also deform, but impotent to reform it? In the treatment of flat-foot, too, we have the advantage of ordinary exercise of the functions of the feet. Every step taken in good walking helps the cure, and to promote such activity under the most favorable physiologic conditions ought to be the surgeon's aim, not only in flat-foot, but in other painful affections.—*ELLIS, Int. Jour. Surg.*

The finding of needles, pieces of glass, bullets, and other foreign bodies in recent wounds is greatly facilitated by slipping one end of a flexible rubber tube over the probe and holding it by pinching the tube together with the thumb and finger, while the other end, armed with a hard-rubber ear tip, such as is used with the phonendoscope, is placed in the ear. In probing the wound, when a hard substance is struck or rubbed, a louder and higher-pitched sound is communicated to the eardrum by the vibration of the air in the tube. The effect is intensified by using a Y-shaped tube with a branch extending to each ear; but with two single tubes, such as are furnished with the phonendoscope, the end of the second tube being held firmly against that of the one containing the probe or metallic knife handle, all extraneous noises are excluded and the sounds communicated to both ears. The same means will probably be found useful in exploring for stone in the bladder, carious bone, etc.—T. CONANT, in *N. Y. Med. Jour.*

At a recent meeting of the Vienna Medical Club, Dr. Hochsinger, describing his theory of congenital syphilis said that the primary symptoms in the fetus and the young infant show a special tendency to diffuse infiltrations, whereas in the primary forms of acquired syphilis and the secondary forms of hereditary syphilis limited cell proliferations were more common. These diffuse infiltrations are well seen in the visceral affections due to congenital primary syphilis, and developed during the intrauterine life of the fetus; localized manifestations are rare, and when they occur may even be ascribed to congenital tuberculosis, for, according to Baumgarten's researches, there is a connection between congenital tuberculosis and congenital syphilis. Another consequence of hereditary primary syphilis is that changes analogous to those in the viscera of the fetus occur in the cutaneous tissues of the young infant, the special symptom being a diffuse infiltration of the skin of the palm of the hand and the sole of the foot. Histologic examination shows in both the visceral and the cutaneous processes an inflammatory cell proliferation originating in the tunica adventitia and the perivascular tissue of the small arteries. In the skin the primary seat of the affection is in the sudoriparous glands, the arteries of which, as well as the veins and capillaries, show very marked cell proliferation. The fact that the inflammatory process in its first stage is limited to the vessels implies that the virus circulating in the blood irritates the coats of the vessels. Diffuse syphilitic inflammation first manifests itself in the intestinal glands of the fetus, and it may be said that there is no syphilitic fetus whose liver is not the seat of a similar process aecting the vessels and the connecting tissue; as a rule, this condition occurs also in the kidneys, the

lungs, and the pancreas. Eruptions on the skin, on the other hand, are peculiar to extra-uterine life. The explanation of these phenomena must be sought for in embryology. The parenchymata of the visceral glands are formed in the second, third, and fourth months of intra-uterine life, the glandular elements of the skin in the fifth month, and the first vascular lumina in the sudoriparous glands in the seventh month; it is therefore obvious that until the glands of the skin are developed it cannot have the vascular system and the copious blood-supply possessed by the visceral glands at a much earlier date. The palm of the hand and the sole of the foot are exceptions to this rule, for they are abundantly furnished with sudoriparous glands, and are by this anatomic peculiarity rendered liable to congenital eruptions such as congenital syphilitic pemphigus.—*Lancet.*

The full bench of the Massachusetts Supreme Court recently decided, in the case of Samuel C. Burney against the Boston Children's Hospital—action to recover damages for an autopsy made without the plaintiff's consent upon the body of his child—that a father has a **property right in the dead body** of his child before and after burial. The contention of the defendant that there is no property right in a dead body, which had been sustained by a lower court, thus apparently falls to the ground.—*Ex.*

Dr. Joseph W. Hickler, of Orange, N. J., in his experiments for an immunizing serum for scarlet fever, discovered that the mucus of the throat and mouth contained the contagium of scarlet fever, and that the early eruptive stage was very infective because of the discharges from the mouth and throat. He found the average period of incubation to be thirty-two hours; time before vomiting, twelve hours; shortest time for desquamation, three days; and the longest, nine days.—*Jour. A. M. A.*

Extract of the red marrow of bone stimulates the formative process and increases the rate of production of the red blood corpuscles. Enormous increase in the number of blood corpuscles, as actually counted by the hemocytometer, has followed its use, but the results seem to depend on the extract being made immediately after the animal has been slaughtered, and before molecular death of the marrow occurs, and that it is not dessicated, nor reduced to the form of a compressed, solidified and decomposing powder. Glycerin seems to be the best basis for preserving the biologic integrity of the extract.

If iron be present in the extract of bone marrow, it is in such a shape that it cannot be detected by ordinary chemical tests, but patients who have taken it look as if they had taken a course of iron.—*Phar. Jour.*

At the Paris Academy of Medicine M. Lucas Championnière, in answer to Prof. Lanelongue upon the treatment of hernia by the sclerogenic method, recently brought to the remembrance of members the present status of the radical operation which he considers one of the most remarkable victories of modern surgery. In his opinion no radical cure is possible except by a very extensive operation, and the more complete and thorough the operation is the better are the results. According to him all petty operations or methods of treatment should be avoided. Injections, in particular, are painful, dangerous, and ineffectual. In operating, the opening into the hernial sac must be very free and must extend into the abdominal cavity so that the operator may be able to have as good a view as possible. As much omentum as possible must be excised, together with the whole of the sac and its neck. All thickened peritoneum in the region of the hernia must be removed, and the abdominal wall must be restored as far as possible by making the margins of the incision overlap and not merely joining them edge to edge. In this way the thickness of the wall in the hernial region is doubled. The wound is closed and drained in the usual way. This method of operating brings about an absolutely accurate restoration of the abdominal wall, but nothing except a very complete and accurate operation is of any use.—*Lancet*.

Quervain (*Sem. Med.*, August 20, 1897) in a monograph on **Otitis Media and Cervical Abscess**, points out that infection may spread from the tympanic cavity in four directions: (1) Upwards through the vault, (2) outwards through the external table of the process, (3) downwards mainly through the lower wall of the mastoid cells, (4) backward along the groove of the mastoid sinus. Infection spreads, not only through the necrotic perforations, but also along the lymph and blood vessels of the osseous canaliculi. An unusual mode is through the groove of the transverse sinus and the foramen lacerum posterius. Abscesses of the neck usually supervene after acute otitis and occasionally after chronic otitis media. The otitis may be caused by all the different pyogenic organisms. Perforation of bone depends, not on the form, but on the virulence of the infective agent. In chronic otitis the infection is usually mixed, in the acute variety pure. Pneumococcal abscesses are usually mild in character. The varieties of cervical abscess are: (1) Submastoid, which extends behind the muscles attached to the mastoid process. The digastric fossa is denuded of periosteum, or a perforation is detected at the apex of the process; in the former case the abscess spreads laterally forwards or backwards, in the latter case it is localized. (2) Phlegmonous inflammation of the lateral regions of the neck, descending between the sterno-mastoid and anterior

border of trapezius, the abscess being either in the sterno-mastoid sheath or between the superficial and deep cervical fascia. (3) Retromaxillary, submaxillary, or retro-pharyngeal. (4) Abscess of the nape of the neck and back following perforation of the posterior part of the mastoid process or digastric fossa, the pus being lodged in pericranium, intramuscular or subcutaneous. The rarest variety are abscesses located between the pericranium and occipital bone due to perforation through the external table of the mastoid or about the mastoid suture. The insertion of the cervical muscles become detached. In one such case phlegmonous inflammation spread to the iliac region. Purulent collections may form in the temporal region above and in front of the ear. Gangrenous abscess is a special form. Painful edema may be mistaken for abscess, as may also thrombosis of the transverse sinus, extending through the mastoid foramen or swollen and immobile lymphatic glands. Exit of pus from the ear on pressure on a cervical tumor may mislead. Cervical abscess rarely ends fatally, retro-pharyngeal abscess is the most dangerous. Free trephining of the bone is the proper treatment in all cases, and the abscess should be opened where fluctuation is most marked or in the safest position. Retro-pharyngeal abscess should be opened externally by Koltmann's method.

A Therapeutic Bacillus.—The *Bombay Gazette* describes a discovery which, if true, may have a wide-reaching application of the highest value in practical medicine. Briefly put, a young Parsee medical man, Dr. Ghadiali, discovered a bacillus, to which he ascribed the peculiar power of destroying the enteric and other allied micro-organisms. This discovery was founded on a research suggested by the interesting fact that if samples of water sent for examination contained the newly-discovered bacillus, then the enteric microbe and its allies were never found. A series of experiments was next carried out, and led to the general conclusion that, under certain circumstances, the new bacillus was able to destroy the enteric forms in water. The aggressive microbe has been named after its discoverer, the "Micrococcus Ghadiali." In pure cultures it is harmless to man when swallowed by the mouth, and produces no ill effects when injected into the peritoneal cavity of rabbits and guinea-pigs. If the report proves true, the "young Parsee doctor" has opened up a field full of brilliant therapeutic prospects in the treatment of a deadly malady.—*Med. Press.*

For Pediculi Capitis.

R. Hydrarg. chlor. mit ..	80	(gr. xii.)
Ac. aceti <i>ci</i> glacialis ..	4	(3 <i>i.</i>)
Aquae	180	(3 <i>v.</i>)

M. Sig.: Use as a lotion, twice a day, after washing the head with green soap.

NEWS AND MISCELLANY.

In Mr. Hall Caine's last novel "The Christian," some comical perversions of medical knowledge occur. For example, the weak-minded but beautiful Polly Love is killed off by a dose of "half a grain of liquor strychnin." This is, perhaps, not quite in accordance with modern pharmacology, but Mr. Caine unfortunately omits to mention anything about the chemist who weighed out the half grain of the liquid poison. In a medico-legal matter, again, Mr. Caine has established a record, and it is evident that we are quite wrong as to the definition of a still-born child, if this record is to be maintained. In "The Christian" the author describes a still-born child as "one that has breathed but never cried." This is such a serious advancement upon medical knowledge that the only thing to be done is for medical authors to cease bringing out any more treatises upon medicine until Mr. Caine has written another novel. Obviously, if novelists seriously begin to act as mentors in medical matters, medical men must assume a becoming attitude of respectful attention, and look to them for information. We should, however, not be surprised to learn that Mr. Caine has had many applications for information respecting his "still-born children." A crying child in a house is usually regarded as a nuisance, but so far no objection has been advanced against an infant which only breathes.—*Med. Press.*

The Anatomy of the Novelist.—Our Gray is becoming pretty old, and the cover is getting loose. Some of the pages are torn and others are missing. We are in need of a new anatomy. This new anatomy should be in part original, and in part a compilation. The chapters that are compiled should be taken from the dissecting table. The chapters that are original should be taken from the works of the modern novelists of the romantic school. In a newly published novel that we recently picked up at a book stall we came upon the following graphic description of the result of a duel between the hero and the villain: "The hero fell at the first shot. The surgeon bent over him. 'Safe,' he whispered. 'The bullet has grazed his temple, but had it gone an eighth of an inch deeper it would have severed the femoral artery.'—"Medical Era."

Preparation of Potassium Iodid to Prevent Iodism.

B.—Potass. iodid.....	5 <i>i.</i>
Ammonii ferro-citrate.....	5 <i>i.</i>
Tr. nuc. vom.....	f3 <i>ii.</i>
Aq. destil.....	f3 <i>i.</i>
Tr. cinchon., q. s.....	f3 <i>iv.</i>
M. et. sig. f3 <i>i.</i>	P. C. in half glass of water.

(Spencer.)

The tincture of nux vomica and citrate of iron combat the tendency to coryza and at the same time act as tonics.

The American Pediatric Society proposes to make an investigation of as many cases as possible of infantile scurvy. These collective researches have proven of great value, and any member of the I. A. R. S. who knows of any cases will greatly assist the undertaking by sending in a report. The society's notice is as follows:

The American Pediatric Society is making a collective investigation of infantile scurvy as occurring in North America, and earnestly requests the co-operation of physicians, through their sending of reports of cases, whether these have already been published or not. No case will be used in such a way as to interfere with its subsequent publication by the observer. Blanks containing questions to be filled out will be furnished on application to any one of the committee. A final printed report of the investigation will be sent to those furnishing cases.

J. P. Crozer Griffith, M. D., Chairman, 123 S. 18th street, Philadelphia.

William D. Booker, M. D., 853 Park avenue, Baltimore.

Charles G. Jennings, M. D., 457 Jefferson avenue, Detroit.

Augustus Caille, M. D., 753 Madison avenue, New York City.

J. Lovett Morse, M. D., 317 Marlboro street, Boston.

Committee.

The news comes from Berlin that a homeopathic pharmacopeia, which is to be officially recognized, is in course of preparation in Germany. The superintending committee, composed of homeopathic doctors, dispensing chemists, and a few university professors, held its first meeting August 11, 1897.

Incontinence of Urine.

- R. Strychniae, gr. j.
Acidi acetici, gtt. ij.
Sacchari albi, 3*jij.*
Aqua destillatae, 5*jij.*
Ft. solutio.

M. Sig.: Fifteen to thirty drops for a child six to twelve years old.—*Mayendie.*

Complete and immediate relief from the effects of ivy poisoning is reported in the *Medical World* by Dr. Shanks. His patient was swollen from head to foot, and in an hour after bathing in a solution of sodium hyposulphite, was attending to business as if nothing had happened.

Expressed in time units, the distance between Cape May, N. J., and Philadelphia, is 100 Minutes—measured by the "Century Flyer" over the route of the South Jersey Railroad.

This, and like marked reductions in time to other points, in connection with the superior modern equipment, splendid service, and capable management maintained by the railroad, easily accounts for recent great increase of travel to the health resorts along the southern coast of New Jersey.